First Copy

A National Newspaper for Every Branch of the Industry

PUBLIC LIBRARY
SEP 25 1930
DETROIT

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

Vol. 10. No. 1301 — Entered as second-class matter Aug. 27, 1925, Post Office, N. Y., N. Y., Under Act of March 3, 1879. — NEW YORK, TUESDAY, SEPTEMBER 23, 1930 — 10 Cents. $12 Per Year

50,000 EXPECTED AT METAL CONGRESS

August Output Reaches 232,838; Eight Months' Total Is 2,835,622

Department of Commerce Figures Show 14% Seasonal Decline From Preceding Month and 54% Drop From Last Year

Special from A. D. N., Washington Bureau.

WASHINGTON, Sept. 22.—Production of passenger cars and trucks in the United States and Canada in August amounted to 232,838 units, it was announced here today by the Department of Commerce. This total was 7,262 short of the preliminary estimate for the month, issued by the National Automobile Chamber of Commerce.

August production compared with 272,551 in the preceding month, a seasonal decline of 14 per cent., and with 512,842 in the corresponding month of last year, a falling off of 54 per cent. This was the sharpest drop in output from 1929 of any month this year, but much comfort is drawn from the fact that the large output of August, 1929, represented substantial overproduction.

For the first eight months of the current year, motor vehicles output was 2,835,622, as compared with 4,444,947 in the corresponding period of last year, a decline of 36 per cent.

The eight months total, compared with 3,236,364 in the corresponding period of 1928 and 2,803,714 in 1927. The August output was below the corresponding month of both 1928 and 1927, comparing with 492,543 in 1928 and 322,520 in 1927.

The output of passenger cars in United States factories last month totaled 187,037 units, representing the lowest month of the year thus far and comparable with 222,459 in July and 440,780 in August, 1929

However, last month's production exceeded that of last November, with 167,846, and December, with 91,011.

While truck production dropped to 35,758 units in August, the figures in this classification showed a more gradual decline than in the passenger car field.

In Canadian factories, the output last month was 9,792 passenger cars and 2,846 trucks, as against 8,556

(Continued on Page 11)

MAY RESORT TO STATUTES TO STOP GASOLINE PRICE WAR IN DETROIT AREA

Detroit, Sept. 22.—The gasoline price war which has been raging in Detroit for the past few weeks promises to end in a day or so as the result of a threat on the part of Acting Chief Assistant Prosecuting Attorney W. Gomer Arise, to invoke a Michigan statute forbidding unfair commercial discrimination.

Under this law, the prosecuting attorney pointed out, severe punishment is possible for such an offense. Such punishment may include suspension of license to operate. In the war that has been in progress for the past week the independents seemed to have the worst of it until this statute was brought into action.

GEORGE KISSEL TELLS OF COMPANY'S PLANS

Milwaukee, Wis., Sept. 22.—The Kissel receivership, according to George Kissel, president of the Kissel Motor Car Company of Hartford, Wis., was not opposed by the company because its officers believe it a protection for all interests involved.

Mr. Kissel stated that it was a friendly receivership and that the company is working in conjunction with Melvin A. Traylor of Chicago, trustee of the Kissel bonds, who is co-operating with the A. C. Allyn Company of Chicago.

It was stated that such action was necessary because of the failing through of a deal between the Kissel company and Archie M. Andrews and the New Era Motors Company of New York. This deal stipulated that the Kissel Company was to build a minimum of 1,500 front wheel drive cars yearly under Ruxton patents owned and controlled by New Era Motors.

The Kissel company was also to build transmissions and parts for all Ruxton front drive cars, in addition to the cars the company was already manufacturing. This included fu-

(Continued on Page 5)

Watson of Link-Belt Co. Sees Definite Upturn

INDIANAPOLIS, Ind., Sept. 22.—**Marked evidences of an upturn in business conditions generally in the United States have been noted by James S. Watson, vice-president of the Link-Belt Company, who has just returned to his office here from a summer tour of Europe. He expressed the belief that the bottom of the depression had been passed and that something like normal business activity should be seen by the first of the year.**

Hand-to-mouth buying, deplored and lamented from time to time when business was hitting a pretty handsome stride, is now proving to have been a blessing in disguise, Mr. Watson said, giving the following reason for his opinion:—

"The bright thing of the present situation is that everybody is now

(Continued on Page 3)

COMPARATIVE AUTOMOBILE PRODUCTION BY MONTHS OVER FOUR-YEAR PERIOD

	1930.	1929.	1928.	1927.
January	285,762	422,538	240,191	254,284
February	362,488	497,705	336,300	323,390
March	422,043	626,076	430,783	417,763
1st quarter	1,070,293	1,546,319	1,007,274	995,437
April	467,295	663,811	434,315	430,993
May	442,078	636,250	459,725	431,356
June	350,567	567,424	425,195	343,025
2d quarter	1,259,940	1,867,485	1,319,235	1,205,374
Six months	2,330,233	3,413,804	2,326,509	2,200,811
July	272,551	518,301	417,312	280,383
August	232,838	512,842	492,543	322,520
Eight months	2,835,622	4,444,947	3,236,364	2,803,714

TODAY

Sparks from Detroit.....Page 2
National Metal Exhibitors and what they exhibit..Pages 2, 3, 5, 9, 10, 11
Technical session begins today at Metal Congress .....Page 3
Editorial: "Theft" .....Page 4
Calendar of coming events....Page 4
Differential discussions .....Page 4
Financial news .....Page 5
Wholesale news and views..Page 8
Amaloy, a hot dip solder...Page 9
Metal Congress program ....Page 9

REFERENCE TABLES

Major specifications and mechanical details of passenger cars..Pages 6, 7

SESSIONS GET UNDER WAY WITH 7,500 DELEGATES IN ATTENDANCE; 175 DISPLAYS

Three New Associations Join Vanguard; Advertising and Sales Chiefs To Have Their Say

Special to the Automotive Daily News

CHICAGO, Sept. 22.—The twelfth annual Metal Congress and Exposition opened at the Stevens Hotel here today with approximately 175 displays filling the large exhibition hall and overflowing into other sections of the hotel. Approximately 7,500 delegates are on hand. The congress will continue until Friday.

The past two days have been days of feverish activity with personnel and facilities taxed with the work of registering the delegates of the various associations participating and putting the final touches on the displays to insure that everything would be in shipshape when the exhibit opened this morning.

Many of the exhibits were set up Saturday and the remaining ones yesterday. Those in charge of the show estimate that more than 50,000 persons will view them during the week. Everything possible has been done to make the booths and their contents more interesting than at any previous exposition, especially from the standpoint of giving them a more popular appeal, with the latest advancements in heat treating and welding devices and methods graphically on view.

As for the programs to be presented at different association meetings, these will establish something of a record, due to the reading of more

(Continued on Page 11)

ROBERT C. GRAHAM SEES BUSINESS DEPRESSION IN U. S. NEAR ITS END

Buffalo, N. Y., Sept. 22.—Belief that the period of industrial depression in the United States is at its end was voiced by Robert C. Graham, vice-president in charge of sales for Graham-Paige Motor Corporation, who was here to attend the formal opening of the new headquarters of W. E. Biggers, Inc., Graham distributor in western New York.

Speaking before a group of 125 dealers from Buffalo, Rochester, Lockport and Jamestown, at a luncheon in the Hotel Statler, Mr. Graham said:—

"From conferences with bankers and industrial leaders held in the course of an extensive tour of the country, I am convinced that the United States has passed the crisis in its economic depression, and more stable conditions are in sight."

Stewart Announces New 3-Ton Truck at $2,590

Buffalo, N. Y., Sept. 22. — The Stewart Motor Corporation, Buffalo, N. Y., announces a new three-ton truck chassis, priced $2,590, equipped with six-cylinder motor, four-wheel brakes, nine-inch frame and full floating rear axle spiral bevel type.

The truck type six-cylinder motor has a bore of 3¾ inches and a stroke of 4½ inches, giving it a displacement of 299 cubic inches. Grey iron pistons are used, thus insuring long life. The sturdy crank shaft is 2⅝ inches in diameter, with large crank shaft bearing. This motor is equipped with timing gears. The cylinders and crank case are cast in one unit. The head is removable.

Lubrication is by pressure to the main connecting rod and cam shaft bearings through drilled passages. A centrifugal water pump with a distributing manifold in the head assures ample cooling. It is possible to install in this Model 35X a 3⅞-inch by 5-inch motor at an additional cost.

The clutch is a large multiple disc, dry plate, ventilated drum type with thirteen plates. Both the clutch throw-out and clutch pilot bearing are of the enclosed type and positively lubricated.

The transmission is a four-speed unit power plant type having case hardened nickel steel gears. The shafts are extra large and are supported on annular ball bearings. It is possible when using a worm or double reduction rear axle to mount a twelve-speed auxiliary transmission at extra cost.

The front axle is a heavy drop forged "I" beam with spring pads forged integral. Timken taper roller bearings in hubs, Timken roller thrust bearings on king pins to insure easy steering. The axle has 64 inches tread and is engineered for balloon tires.

The rear axle is of the heavy truck type construction of the spiral gear full floating type. The housing is of cast steel, the outer end being reinforced with alloy steel sleeves which support the wheel bearings. The diameter of the axle shaft is 1⅛ inches with the ends enlarged where the spines are cut. The standard

(Continued on Page 4)

National Metal Exposition Exhibitors and What They Will Display

CHICAGO, Sept. 22.—**A list of exhibitors and what they are exhibiting at the Metal Congress, which opened at the Hotel Stevens here today, is as follows:—**

Acetylene Journal Publishing Company, Chicago. Booth 72. Exhibiting: Magazines, books and educational matter pertaining to gas welding and cutting.

Air Reduction Sales Company, N. Y. Booth 95.

Ajax Electrothermic Corporation, Trenton. Booth 5-D. Exhibiting: A 1,000-pound Ajax-Northrup coreless high frequency induction furnace, and photographs showing installations of such furnaces and the equipment necessary for operating them.

Allegheny Steel Company, Brackenridge, Pa. Booth 9-D.

Allen Steel Company, Inc., Edgar, New York. Booth 5-B. Exhibiting: Imperial "Major" high speed steel; Imperial "Extra Special" high speed steel; Imperial "Special" high speed steel; turning and finishing steels; Minerva air hardening steel; self hardening steel; special chisel steel; Red Label steel; tack knife steel; die casting steel; solid Double Six production steel; hollow Double Six production steel; Class "P" tool steel; Class "E" tool steel; Stag tool steel; Talon tool steel.

Aluminum Company of America, Pittsburgh. Booth 5-L. Exhibiting: Aluminum in all commercial forms.

American Brass Company, Waterbury. Booth 92. Exhibiting (in operation): Anaconda nonferrous welding rods. Featuring Tobin Bronze and Everdur Welding Rods. Interesting samples of cast iron pieces welded with Tobin Bronze. Display of Everdur Metal—a copper-rich alloy, containing manganese and silicon, with the strength of mild steel. The proper methods used in welding with Tobin Bronze filler rods and the oxyacetylene process will be demonstrated.

American Car and Foundry Company, New York. Booth 51. Exhibiting (in operation): 1 A. C. F. Berwick Electric Rivet Heater; 1 A. C. F. Berwick Electric Forging Heater, for heating stock for forging and upsetting; heat can be made at the end or at points along the bar or piece.

American Cyanamid Company, New York. Booth 19-B. Exhibiting: Samples and literature.

American Forge Company, Chicago. Booth 7-F. Exhibiting: Complete line of sample upset forgings arranged for exhibit.

American Gas Association, New York. Booths 50, 52 and 62.

American Gas Furnace Company, Elizabeth, N. J. Gas Section.

American Machinist, New York. Booth 15-F. Exhibiting: Business publication—American Machinist.

American Steel and Wire Company, Chicago. Booth 71. Exhibiting: Tested Premier Welding Wire and Rods, free from all impurities; cold drawn and cold rolled strip steel, for stamping and all manufacturing purposes; springs for the watch to the locomotive; manufacturing wires and rods in round, flat, square, oval, star and other odd shapes for various manufacturing purposes.

Anchor Drawn Steel Company, Latrobe, Pa. Booth 24-B.

Andresen & Associates, Inc., F. C., Pittsburgh. Booth 43-B.

Armstrong-Blum Manufacturing Company, Chicago. Booth 29. Exhibiting (in operation): Actual demonstration of metal sawing equipment. New model full ball bearing high speed Marvel Hack Saw, No. 6 and No. 6A, being shown for the first time on full automatic production cutting-off work; also showing the No. 8 Marvel Metal Band Saw in universal application to a wide variety of sawing work in bars, structural shapes, pipe, etc.; also showing actual public breakdown test on Marvel High-Speed-Edge power hack saw blades.

Armstrong Brothers Tool Company, Chicago. Booth 27. Exhibiting: Lathe, planer and shaper tools; lathe dogs; "C" clamps; ratchet drills; drop forged wrenches; pipe tools.

Armstrong Cork and Insulation Company, Lancaster, Pa. Booth 6-L. Exhibiting: Armstrong's insulating brick, Nonpareil insulating brick, Armstrong's cork covering, Armstrong's corkboard roof insulation, Armstrong's high pressure covering.

Associated Alloy Steel Company, Cleveland. Booth 3-D. Exhibiting: An exhibit of stainless steels, Nirosta KA2 and Nitralloy.

Automatic Temperature Control Company, Inc., Philadelphia. Booth 27-D. Exhibiting: Valves disassembled for inspection, including "V" port proportional opening types, motor operated controllers, Motomerco relays to operate three-position valve controllers from a two-contact instrument, time cycle contractors for automatic greasing, load advancing in continuous furnaces, etc., motor operated interrupters, electric heat controller; contact instruments of various makes will be shown operating with control equipment.

Automotive Industries, Philadelphia. Booth 9-L.

Babcock & Wilcox Company, Babcock & Wilcox Tube Company, New York. Booth 32-B. Exhibiting welded pressure vessels which have withstood more than 2,000,000 pressure tests; specimens of welds in carbon steel and stainless alloy steels made by the Babcock & Wilcox Company, new welding technique; chromium nickel alloy steel process equipment showing typical welded construction; heat exchangers of stainless steel; castings made in chromium alloy steels; oil still headers cast in chromium nickel alloy steel; cast alloys for high temperature service; stainless steel tubing.

Bastian-Blessing Company, Chicago. Booth 96.

Bausch & Lomb Optical Company, Rochester. Booth 34-B. Exhibiting (in operation): Microscopes, specially designed for use in the steel treating industry, photomicrographic apparatus, colorimeters, tool makers' microscopes, metallographic equipment, magnifiers, reading glasses and numerous other optical instruments of interest to steel treaters.

Bell & Gossett Company, Chicago. Booth 46-B.

Bethlehem Steel Company, Bethlehem, Pa. Booth 30-B. Exhibiting: Structural steel exhibit to consist of framework of structural steel and display boards showing typical sections; alloy steel exhibit showing samples of Mayari steel, Supertemp steel, Resilia spring steel and other alloy steels; an exhibit of corrosion resisting or non-rusting steels, including Bethalon, the free-machining, non-rusting steel; an exhibit of tool steels featuring Comokut and Bethlehem special high speed tool steel.

Botfield Refractories Company, Philadelphia. Booth 45. Exhibiting: Complete showing of refractories cements and mixtures; complete showing of specimens bonded and surfaced with refractories cements and mixtures.

Bristol Company, Waterbury. Booth 27-B. Exhibiting (in operation): Bristol's indicating and recording instruments, also motor-operated control valves for oil, gas and steam, and automatic temperature controllers.

Brown Instrument Company, Philadelphia. Booth 21-B.

Calorizing Company, Wilkinsburg, Pa. Booth 12-B.

Campbell, Inc., Andrew C., Bridgport, Conn. Booth 25.

Carboloy Company, Inc., Detroit. Booth 10. (Exhibiting in operation): A turret lathe tooled up with Carboloy tools to simulate conditions surrounding ordinary production job; display boards showing typical tools and specimens of materials machined with Carboloy tools, wire

(Continued on Page 3)

"THE Whippet Four is one of our most outstanding and successful features, on account of our rural location."

—Sharrock Motor Sales
Norwich, Ohio

Write or wire for franchise details

WILLYS-OVERLAND, Inc.
TOLEDO, OHIO

WILLYS-OVERLAND, LTD., TORONTO, CANADA

SPARKS from DETROIT

Electrics Still Popular

* * *

A. O. Dunk Carries On

* * *

Chris Sinsabaugh—Detroit Editor

IF I should tell you that the electric passenger car department of the automobile industry still survives, the field reduced, it is true, to one lone manufacturer, would you believe me? Well, that's the truth, and this survivor is producing from ten to twelve cars a month for which it gets from $2,800 to $4,200 without the aid of salesmen or catalogues, and it has so many orders booked that it will not guarantee delivery inside of three months. Laugh that off!

When this industry of ours was in its swaddling clothes there were three types of motive power struggling for supremacy—electric, gasoline and steam. In fact, electricity had the jump on the others in the very early days. Gasoline, however, grew in popularity and was generally adopted by the makers of a quarter century ago. Adherents of the other motive powers did not give up, though, and for twenty-two years the electric remained in the fight. In that time there were thirty-six manufacturers of electric passenger cars, but one by one they dropped off until 1928 there were only three left—the Detroit, Rauch & Lang and Milburn. That was the last year for this type of motor carriage, with the one exception mentioned above, the Detroit, which is still in production.

Calling the roll, one remembers many famous makes among the thirty-six. The pioneer was the Woods Electric of Chicago, which early threatened to be a big factor in the industry. Studebaker's first car was an electric. Col. Albert A. Pope, greatest of bicycle manufacturers and later an automobile pioneer, made the Columbia electric along with his Pope-Toledo and Pope-Hartford gas cars. The late A. L. Riker built the Riker electric before he became identified with Locomobile. The National of Indianapolis, now out of the picture, used electric power before invading the gasoline field.

And there were others of prominence—the Rauch & Lang of Cleveland, the Waverley of Indianapolis, the Baker of Cleveland, the Ohio of Toledo, the Flanders of Detroit, the Chicago of Chicago, the Argo of Saginaw, the Columbus of Columbus, O., the Babcock of Buffalo, the Broc of Chicago, the Kimball of Chicago and the Hupp-Yeats of Detroit, the last named built by R. C. Hupp, who started Hupmobile. All but one have passed along.

* * *

WHAT killed off such a powerful branch of the industry? Principally the comparatively slow speed and inability to compete with the gasoline rig in daily mileage. In those days an electric could travel only from forty to fifty miles on one charge, and it took eight hours to recharge the batteries. Now the modern battery will give 100 miles to the charge. That can't compete with gasoline, of course, and so we find the electric the third car of the well-to-do family, used for shopping trips by the women folk or for an easy jog around the boulevards in the cool of the evening.

* * *

BUT what I started out to tell was of the success of the Detroit Electric Car Company, under the management of A. O. Dunk, with the factory still at 540 Piquette St., Detroit. In a way Mr. Dunk had the job wished on him. When W. C. Anderson, founder of the company, died, the Security Trust Company, executor of the estate, asked Mr. Dunk to take over the plant and wind up the business. That was in 1927. But the survivor refused to be wound up. Orders continued to come in, the factory kept producing and not one month since Mr. Dunk took the helm has there been a sign of red ink.

Sales are made by word of mouth only. Those who owned electrics in the past keep on buying them or telling their friends of the comforts of these rigs. So the factory plugs along, trying to catch up with orders and refusing many because of inability to expand production. Only a year ago Japan sent a commission of three over to see Mr. Dunk. The Japanese gentlemen explained that their interest in the electric car was because gasoline is high priced in their country, while electricity, because of so much water power, is very cheap. They wanted to place an initial order for twenty-five and promised to take from 100 to 500 a year if the experiment proved satisfactory. As early delivery could not be guaranteed the deal was not consummated.

Exhibitors and Exhibits At the Metal Congress

(Continued from Page 2)

drawing dies, with specimens of materials drawn.

Carborundum Company, Niagara Falls. Booth 53.

Carborundum Company, Perth Amboy, N. J. Booth 53. Exhibiting (in operation): A completely assembled section of the Carborundum Company recuperator will be exhibited, showing the construction details of the recuperator, and by means of fans the operation of the unit will be illustrated; in addition, panels will be employed, upon which are mounted various samples of refractory brick, tile and special shapes, including hearths and muffles for heat treating furnaces, and samples of different types of high temperature cements, manufactured by the refractory division of the Carborundum Company.

Carpenter Steel Company, Reading, Pa. Booth 6-B. Exhibiting: Carpenter stainless steels, as manufactured in our mills, and articles made of these materials; the different steps in DIOK tool steel inspection (disc inspection by the hot acid etch method) will be illustrated.

Case Hardening Service Company, Cleveland. Booth 46-B. Exhibiting: Hardening room materials and equipment; Bohnite, carburizing compound; Caseite, cyanide hardening compound; cyanide, all grades; drawite, drawing salts, range 300 to 1,200 degrees Fahrenheit; bathite, hardening salts, range 1,200 to 1,700 degrees Fahrenheit; Cleancoat, lead pot covering; non-case, anti-carburizing paint; pressed steel pots; B and G oil coolers; Resistal sheet alloy pots and boxes.

Chemical Catalog Company, Inc., New York. Booth 8-B. Exhibiting: Metals and alloys, a monthly technical journal devoted to the advancement of scientific metallurgy; also technical and scientific books published by the Chemical Catalog Company.

Chicago Steel Foundry Company, Chicago. Booth 41. Exhibiting: A number of unique and interesting castings in Pyrasteel for heat resisting, and in Evansteel for strength and abrasion resisting.

Chicago Steel & Wire Company, Chicago. Booth 106.

Climax Molybdenum Company, New York. Booth 23-D. Exhibiting: Molybdenum in the various forms as used by the iron, steel, chemical and dye industries.

Colonial Steel Company, Pittsburgh. Booth 24-B.

Columbia Tool Steel Company, Chicago Heights, Illinois. Booth 23-B. Exhibiting: Clarite High Speed Steel, Maxite Super High Speed Steel, Superdie High Carbon-High Chromium Steel, Oildie Non-shrinking Steel, Buster Brand Alloy Steel, Special quality, Extra quality and Standard quality Carbon Tool Steel, in bar form; ingots, alloys and fractures; tools and articles made with Columbia tool steel.

Corhart Refractories Company, Inc., Louisville, Ky. Booth 6-F. Exhibiting: Refractory shapes on tables with simple demonstrations of the properties of the material, also service photographs.

Crucible Steel Company of America. Booth 28-B.

Dardelet Threadlock Corporation, New York. Booth 19-D. Exhibiting: Display of Dardelet nuts, bolts and threaded parts; applications of the Dardelet principle; cutting tools for the manufacture of Dardelet thread.

Darwin and Milner, Inc., Cleveland. Booth 17-B. Exhibiting: A general line of high class alloy tool steel products; display of dies and tools demonstrating quantity production, notably with the pioneer oil-hardening, non-deforming die steel Neor and air-hardened patented Cobaltcrom steel; display of form tool castings made of patent Cobaltcrom steel; and Darwin patent Cobaltcrom steel safety razor blades.

Dearborn Chemical Company, Chicago. Booth 6-D. Exhibiting: No-ox-id, the chemically compounded rust preventive; No-ox-idized wrappers; Dearborn mill coat; Lo-ac, a concentrated water soluble rust inhibitor; powdered and liquid cleaners.

Driver-Harris Company, Harrison, N. J. Booth 20-B. Exhibiting: A diversified exhibit of heat treating containers and furnace parts made of "Nichrome," the original heat-resisting alloy. There will be on display carburizing boxes, both cast and sheet and also boxes combining sheet and cast parts; die cast pyrometer protection tubes; lead, salt and cyanide pots; dipping baskets; trays, rollers, fixtures and other furnace parts; bolts and nuts; retorts, mufflers and small intricate castings.

Duriron Company, Dayton, O. Booth 43. Exhibiting: Duriron and Durimet acid-resisting pumps, exhaust fans, valves, tank rods, steam jets and Durimet welded pickling tank.

Eclipse Fuel Engineering Company, Rockford, Ill. Booth, gas section. Exhibiting (in operation): Some new developments in combustion equipment for large gas-fired furnaces, including an operating layout of centrifugal blowers, automatic air and gas proportional mixers, au-

(Continued on page 5)

J. S. WATSON SEES BUSINESS UPTURN

(Continued from Page 1)

ready to buy. They were all forewarned and cut down their inventories promptly. The shelves are empty now. As business comes in, orders have to be placed. This makes the situation for resumption of activity in all lines very much better than in 1921."

The executive bases his conclusions as to the present condition and immediate outlook for business on his contacts with the situation through the Link-Belt exporting agency in New York and its ten factories in various parts of the country, which are in touch with practically all lines of industry at home and in Canada.

Mr. Watson described the homeland as being in much better condition than foreign countries of which he, with Mrs. Watson and their daughter, Elizabeth, visited England, Holland, Austria, Germany, Italy, Switzerland and France. He found the Europeans in an excellent frame of mind, however, with good spirits, indicating early recovery.

Technical Sessions Begin Today at Metal Congress

CHICAGO, Sept. 22.—At the opening meeting of the American Society for Steel Treating which began in Chicago today a number of papers of interest to those engaged in the automotive industry were presented.

Among them are "Corrosion and Heat Resistant Nickel - Copper - Chromium Cast Iron," by J. S. Vanick and P. D. Merica, which is given in part below. Other papers include "Effects of Prequench Treatments on the Hardness, Body, and Structure of Hardened Tool Steel," by R. H. Harrington, and "The Physical Properties of Fine Bolts" by M. H. B. Pulsifer, which are abstracted.

All of the speakers mentioned are members of the A. S. S. T.

Mr. Vanick is research metellurgist of the International Nickel Company, New York city, and Mr. Merica is assistant to the president of the same company.

Mr. Harrington is associated with the research laboratories of the General Electric Company, Schenectady.

Mr. Pulsifer is metallurgist for the Ferry Cap and Set Screw Company, Cleveland.

Physical Properties Of Fine Bolts

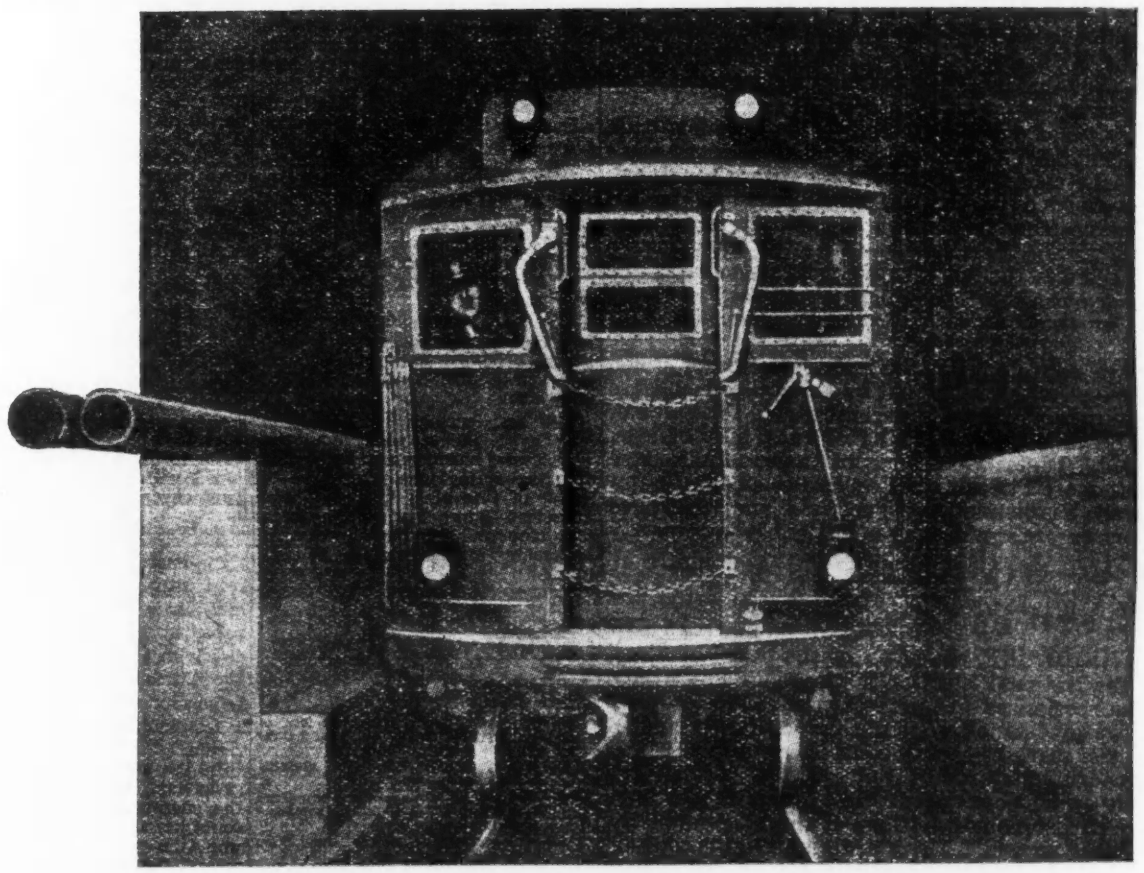
By H. B. PULSIFER

Abstract

The nominal properties that may be expected in bolts made from the usual materials are determined by from one to 500 tests on each material. The question of uniformity and spread in properties is primarily studied by using single coils of wire and single batches in heat treatment.

The results are assembled in

(Continued on Page 10)



Three Miles of Rust-proofed Pipe

. . . in a sweaty setting

Seven years ago the Interborough Rapid Transit Company installed a three-mile line of piping in the Clark Street subway tunnel under the East River, New York City. The walls of this tunnel reek "sweat" twenty-four hours every day. The rust-producing conditions are strikingly abnormal.

Yet this line of piping is as good today as the day it was first installed, because it is coated, inside and out, with AMALOY*

So well has this test proved out that the Interborough is now using AMALOY*—coated cast iron pipe for even more severe service—in sump pits all along the subway routes. And here also AMALOY* has proved entirely satisfactory.

For any service in which the material handled does not affect lead injuriously, you will find AMALOY* the ideal rust-and-corrosion proofing. Let us tell you exactly how it may be used to meet your own needs.

AMERICAN MACHINE & FOUNDRY CO.
511 Fifth Ave., New York City

*AMALOY is a single, continuous coating of practically pure lead applied by a hot dipping process which forms a chemical bond with the coated metal without alloying or impregnating it. Amaloy forms a perfect corrosion-proof adherent encasement that will adhere to the base metal better than galvanizing.

[Our representative, Mr. A. G. Horney, will be at the Hotel Stevens during Metal Congress.]

AMALOY

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday and Monday by
AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION,
350 Hudson St., New York, N. Y.
O. J. Elder, President. H. A. Tarantous, Vice-President. Alexander Johnston, Secretary.

Entered as second-class matter August 27, 1925, at the post office at New York, N. Y., under the Act of March 3, 1879.

Circulation—Net paid Average over 10,000 daily guaranteed.
Member A. B. C.

TUESDAY, SEPTEMBER 23, 1930

ADVERTISING AND BUSINESS HEADQUARTERS

2716 Graybar Bldg., New York, N. Y. Telephone LEXington 6385
Harry A. Tarantous, Business Manager. J. Edward Schipper, Eastern Manager. George M. Slocum, Manager Detroit Bureau, 427-8 Fisher Building, Detroit, Mich., phone Empire 3500; Willard R. Cotton, Western Manager, 333 North Michigan Ave., Chicago, Ill., phone Central 5936; Metz B. Hayes, New England Manager, Little Building, Boston, Mass.; Blanchard, Nichols & Coleman, American National Bank Building, San Francisco, Cal.; Lincoln Building, Los Angeles, Cal.; 1037 Henry Building, Seattle, Wash. Address ALL advertising and business correspondence to 2716 Graybar Building, New York City.

EDITORIAL DEPARTMENT

350 Hudson St., New York, N. Y. Telephone CANal 1000
Alexander Johnston, Editor. William C. Callahan, News Editor, Detroit Bureau—C. G. Sinsabaugh, Editor. 427-8 Fisher Building, Detroit, Mich., phone Empire 3500. Contributing Editor, John C. Wetmore. A. Benson Carleton, Technical Editor.

Mail subscriptions to CIRCULATION DEPARTMENT—C. H. Wilson, Manager.
1926 Broadway, New York, N. Y. Telephone TRAfalgar 4500
Subscription Rates—One year, $12.00; two years, $20.00, for United States and Canada. To Foreign Countries—One year, $15.00; two years, $26.00. Single copies, 10 cents.

Theft

DISCOVERY of a ring of automobile thieves in New York, dealing only in high priced cars, usually stolen on consignment, so to speak, caiis attention to the change that has come over this by-product of automotive activity in the last few years.

Just a few years ago the stealing of automobiles bade fair to become a major industry. Gangs of thieves had their own service departments where stolen cars were repainted, numbers were changed, parts were redistributed so that an owner could never identify his own car if it were actually presented to him. In those halcyon days the thieves stole anything. The lowest priced cars were as welcome as the highest; in fact, more so. Some gangs specialized in Fords or Chevrolets or Hudsons, or any other popular brand of motor vehicle.

Federal laws against interstate transportation of stolen cars, with severe penalties meted out by Federal courts, were the first step toward making life uncomfortable for automobile thieves. State laws on licensing of cars, bills of sale, etc., have helped. Protective devices of various kinds have also made theft more difficult. At any rate, stealing automobiles is not the simple matter it once was, and what once seemed a serious threat against the industry has been pretty effectively curbed.

Green Lights Ahead

GEORGE WOODRUFF, chairman of the board of directors of the National Bank of the Republic of Chicago and one of the recognized financial powers of the country, believes that we are standing on the verge of a period of development even more remarkable than that of the recent past. Mr. Woodruff picturesquely puts it thus: "The red lights through which our people last year drove have changed. The curbstone admonitions of the minions of the economic law near an end. There are green lights ahead."

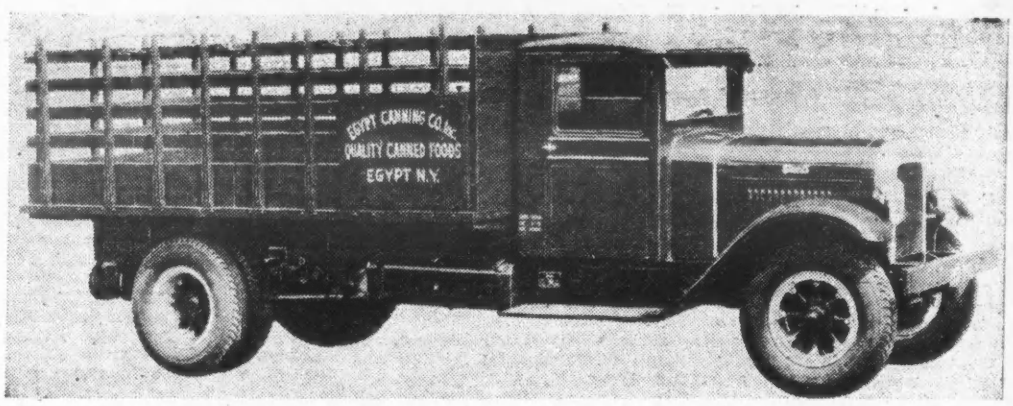
As reason for his belief Mr. Woodruff says: "The needs of 120,000,000 people should catch up with such surplus inventories as may remain on hand after a year of minimum production, bringing about a strong upturn in the business activity of the nation. By the summer of 1931 we may all again clearly behold how wrong are the pessimists when they get to believing American progress has come to an end."

Almost at the same moment that Mr. Woodruff was speaking a great industrial leader, George M. Verity, chairman of the board of the American Rolling Mills Company of Middletown, O., expressed himself in a very similar vein. Holding that the industry, initiative and constructive ability of the American people could not long be held in restraint, Mr. Verity said: "They are bound to break loose, as they always have, and when they do, they will mark the beginning of a new and greater era of progress."

In our own industry, L. A. Miller, president of the Willys-Overland organization, recently remarked in Automotive Daily News: "It is entirely possible that we are near the threshold of an upturn from a surplus of supply to a surplus of demand for automobiles. As the turn comes the effect on our whole industrial situation may be more noticeable than we now expect."

"There is one certain method of overcoming the unemployment problem, the loss of confidence, which has affected practically every section of the country, and the general business depression which we all must acknowledge. The one thing to do is to begin building things that the people of this country need, at a cost which eliminates a maximum of the old easygoing overhead and brings the highest possible value at the lowest possible selling cost. It is the one way to increase the buying power of the dollar to the point where buyers will re-enter the market in volume."—Charles W. Nash.

New Stewart Three-Ton Truck



Stewart Announces New 3-Ton Truck at $2,590

(Continued from Page 1)

gear ratio is 7⅛:1 with a special gear ratio of 6⅝:1 at extra cost. The track is 72½ inches on standard cast steel wheels with dual tires. A Timken worm or double reduction rear axle can be supplied at extra cost. Radius rods are standard equipment.

The service brakes are Bendix 4-wheel Duo-Servo internal expanding type. The front brakes are 16x2 inches, the rear brakes 17¼x3 inches. The hand brake is mounted in rear of the transmission. It is 9 inches in diameter and 5 inches in width.

The steering gear is a Ross cam and lever type with low ratio for easy steering.

The front springs are 40 inches long by 3 inches wide, equipped with bronze bushings with 1 inch diameter spring pins—11 leaves of fine alloy steel.

The rear springs are 56 inches long by 3 inches wide; equipped with bronze bushings and 1¼ inches diameter spring pins. There are 15 leaves of fine alloy springs in the main leaf—6 in helper springs which are standard equipment. Special underslung springs can also be supplied.

Frame. The depth of the frame is 9 inches at the point of greatest strength with a thickness of 9-32 inches, an unusually strong frame.

The drive shaft is a Spicer—2¼-inch tubular type. The universal joints are also Spicer. On long wheelbases where intermediate bearings are necessary they are supported on extra large, self-aligning, S. K. F. bearings.

The tires are 8.25-20 balloon truck tires duals rear with an option of 34x7 duals rear. Oversize tires at extra cost.

The gasoline tank has a capacity of 31 gallons and is located on the side of the frame. Special 30-gallon tank under seat is optional.

Standard wheelbase is 165 inches with a special short of 149 inches. Long wheelbases at extra cost are as follows: 176 inches, 190 inches and 220 inches.

The equipment includes electric starter, electric generator, electric lights, electric horn and battery, tool kit, jack, rear tire, carrier and rim, front bumper, speedometer, windshield wiper and mirror on all factory cabs, air cleaner, thermostat, gasoline gauge, stop light and Alemite grease gun. The handsome walnut finished instrument board is equipped with ammeter, oil pressure gauge, choke button, lighting and ignition switch with indirect lighting on dash.

Paint—Standard Stewart Green with fenders black enamel. Wheels—Stewart red.

The weight of this chassis is 5,800 pounds.

COMING EVENTS

SEPTEMBER

22-26—**Chicago, Ill.** American Society of Mechanical Engineers Iron and Steel Division meeting.
22-26—**Chicago, Ill.** American Welding Society meeting.
22-26—**Niagara Falls, Ont.** American Gear Manufacturers Association semi-annual meeting.
22-26—**Chicago, Ill.** Society for Steel Treating meeting.
22-26—**Chicago, Ill.** American Society for Steel Treating meeting at Stevens Hotel.
29-Oct. 4—**Pittsburgh, Pa.** National Safety Council Annual Safety Congress.

OCTOBER

2-12—**Paris, France.** Automobile Salon.
6- 7—**Reading, Pa.** Pennsylvania Automotive Association Convention.
6- 8—**Tulsa, Okla.** American Society of Mechanical Engineers Petroleum meeting.
6-11—**Washington, D. C.** Sixth International Road Congress.
6-11—**Washington, D. C.** American Road-builders' Association Convention.
7- 8—**Detroit, Mich.** Society of Automotive Engineers production meeting at Book-Cadillac Hotel.
13-15—**French Lick Springs, Ind.** American Society of Mechanical Engineers general meeting.
14-15—**Syracuse, N. Y.** New York State Dealers' Association Convention.
16-25—**London, England.** Olympia Motor Show.
22-24—**Pittsburgh, Pa.** Society of Automotive Engineers transportation meeting.

NOVEMBER

4- 7—**Chicago, Ill.** National Tire Dealers' Association Convention.
6-16—**Berlin, Germany.** International Automobile Show.
8-15—**Chicago, Ill.** Automobile Salon at Drake Hotel.
13-19—**Cleveland, O.** Motor and Equipment Association and National Standard Parts Association, Joint Show.
13-23—**Paris, France.** Commercial Vehicle Salon.

JANUARY

3-10—**New York.** National Automobile Show.
17-24—**Detroit, Mich.** Annual Show, Convention Hall.
24-31—**Chicago, Ill.** National Automobile Show.

FEBRUARY

7-14—**Los Angeles, Cal.** Automobile Salon.
21-28—**San Francisco, Cal.** Automobile Salon.

Differential Discussions

IN this column Automotive Daily News is glad to present the opinions of its readers on topics related directly to the automotive industry. Automotive Daily News, however, must disclaim responsibility for such opinions.

All questions regarding merchandising, technical problems or other information pertaining to Automotive Industry will be answered without charge in this column.

Automotive Daily News: I have read with considerable interest several articles appearing in your paper by Mr. George Brosch. His article in the September 10 issue on the "Personal Side of Selling" contains so much that is pertinent that I feel impelled to add some comments.

In the course of a year I see a great many car owners from all over the country, and if a factory man could hear these owners I think he would be very much surprised. Of course, the men that come here are only a very small percentage of all the owners, and are the ones who have failed to secure satisfactory service, sometimes through their own fault; nevertheless their complaints indicate that more action and less talk is needed about service.

My own experience as an owner has been such that I wonder as many dealers remain in business as they do. So far no salesman has ever called upon me to sell a car anywhere near the time when I would naturally be in the market for a new one, and I have yet to purchase a second car of the same make.

When I am in the market for a car the salesman describes the car and its performance and their service in glowing terms and makes me feel that my money is appreciated to the extent of apparently taking an interest in seeing that I purchase a good car (which is theirs, of course). As soon as I have purchased the car everything is different. No one ever calls up or writes, or in any other way intimates that the dealer is interested in the transportation I am receiving from that car. When I go down to have some work done on the car the reception is perfunctory, the work is done and a bill rendered promptly, but very seldom is the job tested before delivery to me, and quite often it is necessary to take it down two or three times to have it fixed and then in the end perhaps I am told that they just can't fix it, that that is the best it will do.

It is not the price of labor and the cost of parts, although these are high enough, but the fact that I pay for a good job and do not get it, and when the car is delivered to me I have no assurance that the trouble has been eliminated. Is it any wonder that after several such experiences so many car owners go to the independent repair man?

We hear a great deal about the parts business going to everybody else but the dealers. The trouble seems to be that the average dealer is thinking more about selling parts than he is about giving service. Now there are exceptions, of course, and the foregoing remarks do not apply to those who are doing a good job, but the fact remains that in this section of the country, at least, the independent repair man who has proven to be reliable has more work than he can handle and that one of the big reasons why trade-in allowance plays such a part is due to the fact that the owner, after two or three experiences, decides that all the dealers services are rotten anyway, and that he is going to have trouble with his new car, so that he might as well get the best allowance he can, and then expects the independent repair man to fix it up when he has trouble.

If the dealer would give service he would not have to worry about his parts sales. An owner naturally prefers to go back to the man from whom he purchased his car, so that the dealer starts out with the initial advantage. **R. C. GRAHAM,**
Service Manager, Ross Gear and Tool Company, Lafayette, Ind.

HUFFMAN CO. ANNOUNCES BIG BUSINESS INCREASE

Indianapolis, Ind., Sept. 22.—An increase of more than 50 per cent. in the wholesale field covering forty-three Indiana counties is reported over July during August, the first month for the I. Boyd Huffman Company, newly appointed Willys-Overland distributor here. At the same time, Mr. Huffman announced that September business so far had shown about the same percentage of increase over August.

Motor Stocks Are Stronger Than General List

IMPROVED TRADE PROSPECT HELPS

General Motors Sales Report Encouraging Factor

By CONRAD ALEXANDER

NEW YORK, Sept. 22.—Automotive stocks fared better than the general run of securities in the heavy selling that swept the stock exchanges in the past week. This liquidation was attributed to numerous causes, including political troubles in Germany, weakness in the grain market and the slowness in business recovery.

The average price of sixty representative automotive shares listed on the various stock exchanges declined only nine-tenths of one point from the closing of the week ended September 13 to the closing on Saturday, last. The last close was 26.83, as compared with 27.73 in the preceding week.

The average price of twenty representative passenger car stocks closed the week at 26.90, a loss of 1.16 from the preceding week. Twenty accessory and equipment stocks closed at 29.08, a loss of 1.63, while ten rubbers finished up at 31.20, off only .06 of a point and ten trucks at 17.70, a decline of 1.91.

General Motors, the motor leader, continued to show strength in the face of general weakness, closing at 43⅛, off only 1⅝ points from the preceding week. Chrysler lost 1¾ points, closing the week at 26¼.

The strength in motor stocks was due to some extent to the favorable news of the week regarding this industry. The General Motors report of retail and factory sales for August revealed that there was a decided pick-up in retail deliveries during the month over the preceding month and that for the last three months General Motors retail sales exceeded the factory shipments. In this connection, it was reported by the Uppercu-Cadillac Corporation that there was a shortage of cars in the New York metropolitan district, the demand for the new Cadillac and La Salle models outrunning the supply.

Following is the action of some of the leading motor stocks on the New York Stock Exchange during the past week:—

AUTOMOTIVE DAILY NEWS STOCK PRICE AVERAGES

	Sept. 13	Sept. 20	Net Chg.
60 Automotives	27.73	26.83	—.90
20 Passenger cars	28.06	26.90	—1.16
20 Accessories	30.71	29.08	—1.63
10 Rubbers	31.26	31.20	—.06
10 Trucks	19.61	17.70	—1.91
ACTIVE STOCKS			
General Motors	44¾	43⅛	—1⅝
Chrysler	28	26¼	—1¾
Packard	13¼	12¾	—½
Mack	60	54	—6
Goodyear	53⅜	55	+1⅝
Bendix	32	30	—2

	Sept. 13	Sept. 20	Net Chg.
American Chain	57	55	— 2
Auburn	123	115	— 8
Bendix	32	30	— 2
Bohn A. & B.	28⅛	28	— ⅛
Borg-Warner	28½	27½	— 1
Briggs	18⅞	19½	— ⅝
Brockway	17⅞	19⅛	— 1¼
E. G. Budd	8¼	8⅛	— ⅛
Budd Wheel	10¾	10¼	— ½
Checker Mfg.	31	31	....
Chrysler	28	26¼	— 1¾
Clark Equipment	29¼	30	+ ¾
Continental M.	3⅞	3⅝	— ¼
Eaton Axle	24⅛	22½	— 1⅝
Electric Auto Lite	63⅞	61½	— 2⅜
Firestone	19⅝	20½	+ ⅞
Gardner	2¼	2⅛	— ⅛
General Motors	44¾	43⅛	— 1⅝
Goodrich	22½	23	+ ½
Goodyear	53⅜	55	+ 1⅝
Graham-Paige	6	5⅞	— ⅛
Hayes Body	6¼	6	— ¼
Houdaille-Hershey	8¾	8½	— ¼
Hudson	29⅞	29¼	— ⅝
Hupp	13½	11¾	— 1¾
Kelsey-Hayes	29½	28⅛	— 1⅜
Link Belt	38¾	40	+ 1¼
Mack Trucks	58	54	— 4
Midland Steel	31	29½	— 1½
Moon	6½	5	— 1½
Moto-Meter	3¾	3½	— ¼
Motor Products	43⅞	41½	— 2⅜
Motor Wheel	21¾	20¾	— 1
Murray	17½	16¼	— 1¼
Nash	34⅛	32⅞	— 1¼
Packard	13¼	12¾	— ½
Peerless	5	4½	— ½
Pierce-Arrow	20	21½	+ ½
Raybestos-Man	29½	29½	....
Reo	13¾	13	— ¾
Spicer	18	17¼	— ¾
Stewart-Warner	27	24¾	— 2¼
Studebaker	31	30¾	— ¼
Timken Roller	69	65½	— 3½
Trico Products	34¼	35	+ ¾
U S Rubber	20	18	— 1½
White	34	32⅝	— 1⅜
Willys-Over	6½	6½	....
Yellow T & C	22	20	— 2

COMFORTABLE AS HOME!

Men who travel a great deal look forward to their visits to the Hotel Sinton in Cincinnati! You, too, will enjoy the cordial, friendly, atmosphere, the spacious, attractive lobby, and the comfortable, home-like rooms. Convenient location. Five beautiful dining rooms from quick-service Coffee Shop to formal dining room. Reasonable tariffs. Ideal for conventions.

Bath and servidor in every room

Hotel Sinton
Cincinnati's Finest Hotel
John E. Horgan
MANAGING DIRECTOR

Exhibitors and Exhibits At the Metal Congress

(Continued from Page 3)

tomatic temperature controllers and burners; will also exhibit typical heat treating furnaces and new developments in accessory equipment; various types of high and low-pressure gas burners for large capacity uses will be arranged for demonstration; included also will be automatic temperature control equipment and several proportional gas and air-mixing systems; new immersion type heating equipment will be shown.

Elkon, Inc., New York city. Booth 98.

Electric Furnace Company, Salem, O. Booth 4-L. Exhibiting: Over 100 photographs of electric, oil and gas fired furnace installations, including new chain belt conveyor, pit type, car type, recuperative, roller hearth and rotary furnaces, for annealing, carburizing, normalizing, enameling, nitriding, hardening, drawing, forging, billet heating and process heating—also specially built gantry cranes, charging machines and other labor-saving material handling equipment used in connection with furnaces; samples of chain belt conveyor, cast metallic heating elements, roller rails and miscellaneous other parts used in these furnaces, will be on display; printed matter and bulletins are available.

Electric Steel Founders' Research Group, Chicago. Booth 39-B. Exhibiting: Miscellaneous small and medium-sized castings of carbon or common steels, and alloy or special steels, as made regularly in Research Group foundries, from metal produced in electric furnaces; plant views, physical test specimens, and other details indicative of Group plant practices.

Ferner Company, R. Y., Washington, D. C. Booth 14. Exhibiting (in operation): Equipment made by the Societe Genevoise d'Instruments de Physique, of Geneva, Switzerland, and will include one of their latest type of Swiss Jig Boring Machines, size 4B, which will be operated, demonstrating its accuracy and speed in the drilling and boring of holes in jigs and fixtures; one of their Universal Measuring Machines, 20-inch capacity, will also be exhibited, and the latest improved type of micro-indicator support for the measurement of steel balls; other measuring equipment to be exhibited will include a micro-indicator support type U-2 and a new one, type U-3, for the measurement of various metal parts; also exhibited will be the line of Dilatometers made by the S. A. de Commentry-Fourchambault et Decazeville of Imphy, France; one of their Thermal Analysers, a recording instrument for showing the expansion of a test specimen in comparison with a standard in an electric furnace giving temperatures up to 1,000 degrees Cent., and two different dilatometers will also be shown, one registering mechanically and one recording photographically.

Ferry Cap and Set Screw Company, Cleveland. Booth 2-L. Exhibiting: Cap screws, set screws, milled studs, standard and special screws and bolts in alloy steels, connecting rod bolts, cylinder head bolts, flywheel bolts, king bolts, tie rod bolts, hardened and ground parts, Ferry patented acorn nuts—covered and semi-covered.

Fink & Sons Company, A., Chicago. Booth 2-D. Exhibiting: Pictures of plant operations, forgings, etc.; also a Neon electric sign representing a die block.

Firth-Sterling Steel Company, McKeesport, Pa. Booth 37-D. Exhibiting: A glass case showing the materials entering into the manufacture of tungsten carbide and showing these materials at various steps of the process; this case will also contain representative tools of tungsten carbide; another case containing photographs and tabular matter on glass plates illuminated from behind; these photographs will show typical operations with Firthite, Circle C High Speed Steel and Cromovan Triple Die Steel; the tabular matter will compare our products with similar products; a motor-driven device showing the comparative cutting speeds (average) of high speed steel, super high speed steel and tungsten carbide tools; booklets and other literature.

Ford Company, J. B., Wyandotte, Mich. Booth 26. Exhibiting (in operation): Glass tanks showing methods for agitating metal-cleaning solutions by air. The glass tanks enable one to see what takes place in an agitated solution, in comparison to an unagitated solution. Large picture of plant. Samples of metal cleaners.

Fusion Welding Corporation, Chicago. Booth 106. Exhibiting (in operation): New applications, welding equipment and supplies developed by the company's research department during the past year; Weldite welding rods for both gas and electric welding will be demonstrated. These new rods represent marked improvements in weld properties and operating characteristics. The Weldite line represents over forty distinctly different welding rods designed to meet every requirement. The Fuzon line of arc welding generators will be on display and in operation. These include models of various capacities, both portable and stationary. The com-

(Continued on Page 9)

GEORGE KISSEL TELLS OF COMPANY'S PLANS

(Continued from Page 1)

neral cars, taxicabs and Kissel automobiles.

According to Mr. Kissel, Mr. Andrews advanced $100,000 and allowed the Kissel Company to go ahead with and prepare for the new program, but later refused to pay the balance, namely, $150,000, which the arrangements called for. Mr. Kissel stated that this receivership may aid in a reorganization plan in which the A. C. Allyn Company is taking a friendly interest and which may again place the Kissels in control of the company.

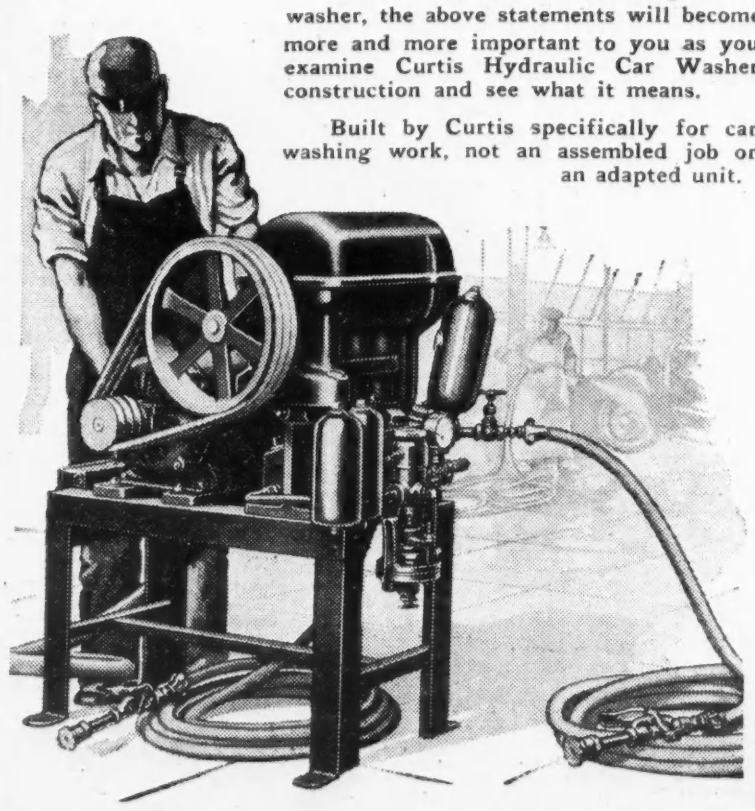
He stated that under the reorganization plan it is intended further to diversify manufacturing in the Kissel plants, building several different lines and contracting with large companies to handle sales and finances. The manufacture of Kissel passenger cars will be continued, but they will be built on the front-wheel drive principle and on a strictly custom-built basis, it was stated.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

Silent! Fully Enclosed! Self-Oiling!

When it comes to choosing a car washer, the above statements will become more and more important to you as you examine Curtis Hydraulic Car Washer construction and see what it means.

Built by Curtis specifically for car washing work, not an assembled job or an adapted unit.



Triplex type 3 cylinder pump provides constant, steady high pressure, without jerky action; permits slow speed, therefore, no racking strain.

Fully enclosed construction permits automobile type of flooded self-oiling. No oil or grease cups.

Outside packed pistons with non-binding ball and socket glands. Packing adjustable without removing a single part.

No inaccessible cup leathers on piston to wear out, and no porcelain lined cylinders to check and flake off.

Four-bearing crankshaft, not the usual two or three.

Silent "V" Belt Drive, no noisy chains or gears to wear or break; frame of metal, no wood to rot.

Pump cannot become air bound. Connected direct to water line without danger of "water hammer," or blowing out plumbing fixtures.

Self-closing nozzle has handy spring lever control. Can be locked in either body or chassis wash position. Nozzle disc of hardened, rustless steel, not quick wearing material.

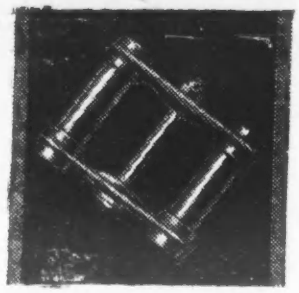
Actual records show that the Curtis Washer will pay for itself out of increased business and lowered cost in from 5 to 15 weeks. Send for booklet "Super-Service Profits," and for Curtis Washer Catalog, which give complete details of its superior construction.

CURTIS
CAR WASHER

CURTIS WILL SERVE YOUR CAR

CURTIS PNEUMATIC MFG. CO.
1960 KIENLEN AVENUE, ST. LOUIS, MO.
5518AH, HUDSON TERMINAL, NEW YORK

10



Tryon
SPRING SHACKLES

There are sound engineering reasons why twenty leading motor cars are factory equipped with superior Tryon Spring Shackles. Car names on request.

Manufacturers: Write at once for full information and quotations.

Sole Licensee:
WILLYS-MORROW CO., INC.
ELMIRA, NEW YORK

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

MAKE AND MODEL	Weight—5-P. Sedan	Wheel Base	Engine Make	Fan Belt Type	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H. P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Clean'r	Carburetor	Air Cleaner
Auburn 6-85	3255	120	Lyc	V	Dole	L	6	2⅞x4¾	185	*5.16	19.8	70@3400	*Alum	4	No	No	Sch	No
Auburn 8-95	3510	125	Lyc	V	Dole	L	8	2⅞x4¾	246	*5.15	26.4	95@3300	*Alum	5	Pur	AC	Sch	No
Auburn 125	3908	130	Lyc	V	Dole	L	8	3¼x4½	299	*5.25	33.8	125@3600	*Alum	5	Pur	AC	Sch	No
Austin	§1130	75	Own	F	——	L	4	2.2x3	45.8	5.1	7.8	13@3000	Alum	2	—	—	Til	—
Blackhawk 6	4320	127½	Own	—	Bish-Bab	O	6	3⅜x4½	241.5	5.10	27.3	85@3150	*Alum	7	Wal	AC	Zen	Un
Blackhawk 8	4185	127½	Own	V	Bish-Bab	L	8	3 x4¾	268.5	5.50	28.8	88@3200	*Alum	5	Wal	AC	Zen	AM
Buick 8-50	3170	114	Own	V	Dole	O	8	2⅞x4¼	220.7	4.8	26.45	77@3200	CI	5	AC	—	Mar	AC
Buick 8-60	3795	118	Own	V	Dole	O	8	3 1/16x4⅝	272.6	4.63	30.02	90@3000	CI	5	AC	—	Mar	AC
Buick 8-80	4255	124	Own	V	Dole	O	8	3 5/16x5	344.8	4.5	35.12	104@2800	CI	5	AC	—	Mar	AC
Buick 8-90	4340	132	Own	V	Dole	O	8	3 5/16x5	344.8	4.5	35.12	104@2800	CI	5	AC	—	Mar	AC
Cadillac 355	——	134	Own	V	Yes	L	8	3⅜x4 1/16	353	5.35	36.45	95@3000	CI	3	—	Gas	Own	—
Cadillac 452	6100	148	Own	V	Yes	O	16	3 x4	452.0	5.50	57.5	165@3400	CI	5	AC	Gas	Own	None
Chevrolet	2500	107	Own	V	Yes	O	6	3 3/16x3¾	194.0	5.01	26.3	46@2600	CI	3	—	AC	Car	AC
Chrysler 6	2745	*169¼	Own	V	Yes	L	6	3⅛x4¼	195.6	5.29	23.44	62@3200	*Alum	4	—	Yes	Car	—
Chrysler 70	3435	*168½	Own	V	Yes	L	6	3⅜x5	268.4	5.00	27.34	93@3200	*Alum	7	Pur	AC	Str	Un
Chrysler 66	2850	*163¼	Own	V	——	L	6	3⅛x4¾	218.6	5.00	23.43	68@3000	Alum	7	Pur	AC	Str	Un
Chrysler 8	——	*186 1/16	Own	V	Yes	L	8	3 x4¼	240.3	5.20	28.8	80@3400	*Alum	5	Yes	—	Str	Yes
Chrysler Imp. 8	——	*210¾	Own	V	Yes	L	8	3½x5	384.8	5.01	39.2	125@3200	*Alum	9	Yes	—	Str	Yes
Cord (Fr. Wh. D.)	4530	137½	Lyc	V	——	L	8	3¼x4½	298.6	5.25	33.8	125@3600	*Alum	5	Yes	AC	Sch	—
De Soto 6	2705	*169¼	Own	V	Yes	L	6	3⅛x4⅛	189.81	5.20	23.44	60@3400	*Alum	4	—	Yes	Car	Un
De Soto 8	2965	*177	Own	V	Yes	L	8	2⅞x4	207.7	5.20	26.45	70@3400	*Alum	5	—	Yes	Str	Yes
Dodge Six D D	2668	*168⅝	Own	V	Yes	L	6	3⅛x4⅛	189.8	5.20	23.4	60@3400	*Alum	4	No	No	Car	—
Dodge 8	3043	*176⅞	Own	V	Yes	L	8	2⅞x4¼	220.7	5.20	26.45	75@3400	*Alum	5	Pur	No	Str	Un
Durant 6-14	2950	*172¼-176	Con	V	Bish-Bab	L	6	3¼x4	199	5.32	25.4	58@3100	*Alum	4	AC	AC	Str	AC
Durant 6-17	3290	*175¾-179½	Con	V	Bish-Bab	L	6	3⅜x4⅝	248	5.06	27.34	70@3000	*Alum	7	Ac	AC	Str	AC
Elcar 6-75	2942	117	Lyc	V	Yes	L	6	2⅞x4¾	165	5.25	19.8	61@3000	*Alum	4	Pur	Gas	Sch	—
Elcar 140 and 130	†3980	135-130	Con	V	Yes	L	8	3⅝x4½	322	5.25	36.45	140@3300	*Alum	5	Pur	Gas	Sch	—
Elcar 8-95-96	3299	123	Lyc	V	Yes	L	8	2⅞x4¾	246.7	5.25	26.5	90@3000	*Alum	5	Pur	Gas	Sch	—
Essex	2805	113	Own	V	——	†L	6	2¾x4½	160.4	5.80	18.15	60@3600	Alum	3	—	Ste	Mar	AC
Ford A	2375	103½	Own	V	——	L	4	3⅛x4¼	200.5	4.22	24.03	40@2200	Alum	3	—	—	Zen	—
Franklin 145	3930	125	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	95@3000	Alum	7	AC	AC	Str	AC
Franklin 147	4230	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	95@3000	Alum	7	AC	AC	Str	AC
Gardner 126	3330	122	Lyc	V	Dole	L	8	2⅞x4¾	246.6	5.15	26.5	70@3500	*Alum	4	Pur	Gas	Sch	—
Gardner 148	3500	125	Lyc	V	Dole	L	8	2⅞x4¾	246.6	5.15	26.5	100@3300	*Alum	5	Pur	Gas	Sch	AM
Gardner 150	3890	130	Lyc	V	Dole	L	8	3¼x4½	298.6	5.25	33.8	126@3300	*Alum	5	Pur	Gas	Sch	AM
Graham Std. 6	3175	115	Own	F	Dole	L	6	3⅛x4½	207	5.41	23.44	66@3200	*Alum	7	No	AC	DL	AC
Graham Spl. 6	3390	115	Own	F	Dole	L	6	3¼x4½	224	5.49	25.35	76@3400	*Alum	7	AC	AC	DL	AC
Graham Std. 8	3795	122	Own	V	Bish-Bab	L	8	3¼x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	AC
Graham Spl. 8	3875	122	Own	V	Bish-Bab	L	8	3¼x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	AC
Graham Cust. 8	4300	127	Own	F	Bish-Bab	L	8	3⅜x4½	322	5.41	36.45	120@3200	*Alum	5	AC	AC	John	AC
Graham Cust. 8	4405	137	Own	F	Bish-Bab	L	8	3⅜x4½	322	5.41	36.45	120@3200	*Alum	5	AC	AC	John	AC
Hudson Super 8	3200	119-126	Own	V	——	L	8	2¾x4½	213.8	5.80	24.2	80@3600	Alum	5	—	Ste	Mar	AC
Hupmobile Cen. 6	2900	114	Own	V	Yes	L	6	3¼x4¼	211.6	5.10	25.35	70@3200	Alum	4	Pur	Ste	Str	Yes
Hupmobile Cen. 8	3175	118	Own	V	Pines	L	8	2⅞x4⅝	240.2	5.20	26.45	90@3200	Alum	5	Pur	Ste	Str	Yes
Hupmobile C	3725	121	Own	V	Pines	L	8	3 x4¾	268.6	5.20	28.8	100@3200	CI	5	Pur	Ste	Str	Yes
Hupmobile H & U	**	125-137	Own	V	Pines	L	8	3½x4¾	365.6	5.20	39.2	133@3400	Alum	5	Pur	Ste	Str	AM
Jordan St. Line 80	3490	120	Con	V	Pines	L	8	2⅞x4¾	246.7	5.10	26.5	80@3000	*Alum	5	Ste	AC	Str	AC
Jordan G. Ninety 8	3700	125	Con	V	Pines	L	8	3 x4¾	268.6	5.10	28.9	85@3200	*Alum	5	Ste	Ste	Str	AM
La Salle 345	——	134	Own	V	Yes	L	8	3⅜x4 1/16	353	5.35	36.45	95@3000	CI	3	—	Gas	Own	—
Lincoln	5030	136	Own	V	——	L	8	3½x5	384	4.83	39.2	90@2800	Alum	5	Pur	Own	Str	Un
Marmon-Roosevelt	2833	*172	Own	V	Dole	L	8	2¾x4¼	201.9	5.25	24.2	77@3400	Alum	5	—	—	Str	AC
Marmon Eight 69	3103	*180	Own	V	——	L	8	2 1/16x4¼	211.2	5.50	25.4	84@3400	Alum	5	AC	AC	Sch	AC
Marmon Eight 79	4028	*191	Own	V	Pines	L	8	3 1/16x4¾	303.2	5.50	32.5	110@3400	Alum	5	AC	AC	Sch	AC
Marmon Big Eight	4363	*202	Own	V•	Pines	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	AC	AC	Sch	AC
Nash Single Six	2850	114¼	Own	V	Pines	L	6	3⅛x4⅜	201.3	5.00	23.4	60@2800	*Alum	7	AC	AC	Car	AC
Nash Twin Ig. 6	3535	118-128¼	Own	V	Pines	L	6	3⅜x4½	242	5.00	27.3	74@2800	*Alum	7	AC	AC	Mar	AC
Nash Twin Ig. 8	4000	124-133	Own	V	Pines	L	8	3¼x4½	298.6	5.25	33.8	100@3200	*Alum	9	AC	AC	Mar	AC
Oakland V-8	3205	117	Own	V	Yes	H	8	3 1/16x3⅜	251.0	5.00	37.8	85@3000	S St	3	—	AC	Mar	AC
Oldsmobile	2940	113½	Own	V	——	L	6	3 1/16x4⅛	197.5	5.20	24.4	62@3000	CI	4	AC	AC	John	AC
Packard 826-833	4479	——	Own	V	—	L	8	3 1/16x5	320.0	—	32.5	100@3200	*Alum	9	—	—	Own	—
Packard 840-845	4955	——	Own	V	—	L	8	3½x5	384.8	—	39.2	120@3200	*Alum	9	—	—	Own	—
Peerless St. 8	3642	118	Own	V	Bish-Bab	L	8	2⅞x4¾	246.0	5.00	26.45	85@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Master 8	4521	125	Own	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Custom 8	4766	138	Own	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	120@3200	*Alum	5	Pur	AC	Sch	AC
Pierce-Arrow	4523	132	Own	V	Yes	L	8	3⅜x4¾	340	5.07	36.45	115@3000	*Alum	9	Yes	Yes	Str	Un
Pierce-Arrow	4304	134	Own	V	Yes	L	8	3½x4¾	366	5.07	39.2	125@3000	*Alum	9	Yes	Yes	Str	Un
Pierce-Arrow	4713	139	Own	V	Yes	L	8	3½x4¾	366	5.07	39.2	125@3000	*Alum	9	Yes	Yes	Str	Un
Pierce-Arrow	4831	144	Own	V	Yes	L	8	3½x5	385	5.07	39.2	132@3000	*Alum	9	Yes	Yes	Str	Un
Plymouth	2595	*167	Own	V	——	L	4	3⅝x4¾	196	4.60	21.03	48@2800	*Alum	3	—	Yes	Car	—
Pontiac	2745	110	Own	V	Var	L	6	3 5/16x3⅞	200.0	4.90	26.3	60@3000	S St	3	—	AC	Mar	Yes
Reo 15	3300	115	Con	V	Dole	L	6	3⅝x4	214.7	5.50	27.3	60@2800	*Alum	7	—	—	Sch	Un
Reo 20	3700	120	Own	V	Bish-Bab	L	6	3⅜x5	268.3	5.30	27.3	80@3200	Alum	7	Han	—	Sch	Un
Reo 25	3795	124	Own	V	Bish-Bab	L	6	3⅜x5	268.3	5.30	27.3	80@3200	Alum	7	Han	—	Sch	Un
Ruxton Fr.Wh. Dr.	4000	130	Own	V	Yes	L	8	3 x4¾	268.6	5.09	28.8	100@3400	*Alum	5	Yes	AC	Zen	AM
Studebaker Six	2950	114	Own	V	Dole	L	6	3¼x4⅛	205.3	5.20	25.4	70@3200	CI	4	Han	Ste	Sch	—
Studebaker Dict. 8	3155	114	Own	V	Dole	L	8	3 1/16x3¾	221.0	5.10	30.0	81@3200	*Alum	9	Pur	Ste	Str	AM
Studebaker Com. 8	3520	124	Own	V	Dole	L	8	3 1/16x4¼	250.4	5.20	30.0	101@3200	*Alum	9	Han	Ste	Str	AM
Studebak'r Pres. 80	4230	130	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Studebaker Pres. 90	*4360	136	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	—	Str	AM
Stutz	4918	134½-145	Own	—	Yes	O	8	3⅜x4½	322	5.10	36.5	112@3300	*Alum	9	Wal	Gas	Zen	AM
Viking Eight	3620	125	Own	V	Yes	H	8	3⅜x3⅝	259.5	5.10	36.5	81@3200	CI	3	Own	AC	John	AC
Windsor 6-69	3195	120	Con	V	Dole	L	6	2⅞x4¾	185	5.00	19.8	47.5@2600	*Alum	4	AC	—	Str	—
Windsor 6-72	2930	120	Con	V	Dole	L	6	3⅜x4	215	4.94	27.3	66@3200	*Alum	7	AC	—	Str	—
Windsor 6-77	2930	120	Con	V	Dole	L	6	3⅜x4	215	4.94	27.3	66@3200	*Alum	7	AC	—	Str	—
Windsor 8-85	3600	125	Con	V	Dole	L	8	3 x4¾	269	5.00	28.8	85@3100	*Alum	5	AC	Gas	Str	AC
Windsor 8-92	3600	125	Con	V	Dole	L	8	3 x4¾	269	5.00	28.8	85@3100	*Alum	5	AC	Gas	Str	AC
Whippet 96 A	2673	103¼	Own	V	No	L	4	3⅛x4¾	145.7	5.40	15.6	40@3200	CI	3	No	No	Til	No
Willys Six 98-B	2623	110	Own	V	Var	L	6	3¼x3⅞	193	5.56	25.3	65@3400	CI	4	No	Til	Til	Til
Willys 8-80	3076	120	Own	V	Var	L	8	3½x4	245.4	5.40	31.25	80@3200	CI	5	No	Til	Til	Til
Willys-Knt. 66-B	3868	120	Own	V	Var	K	6	3⅜x4¾	255	5.50	27.3	87@3200	*Alum	7	Ski	Til	Til	Til
Willys-Knight 87	3001	112½-115	Own	V	Var	K	6	2 1/16x4⅜	177.9	5.88	20.7	55@3000	*Alum	7	Ski	Til	Til	Til

Weight—*Studebaker 7-pass. sedan. †On Elcar 140 4,375 pounds. §Austin Standard 2-passenger coupe. **Hupmobile model H weighs 3955 and model U 4225.

Wheel Base—*Over all length of chassis instead of wheel base.

Engine Make—Con, Continental; Lyc, Lycoming.

Fan Belt Type—V, V-type; F, flat; C, cone.

Thermostat—Bish-Bab, Bishop & Babcock; Dole, Dole Valve Co., Chicago, Ill.; Pines, Pines Winterfront; Var, various makes.

Valve Arrangement—L, L head; H, horizontal; O, overhead; K, sleeve valve. LV, V-type L head.
*Air cooled. †Thermo syphon water circulation.

Piston Material—*Alum, aluminum with invar struts; Alum, aluminum alloy; CI, cast iron; S St, semi-steel.

Compression Ratio—*Optional on the Auburn.

Oil Purifier—Pur, Purolator; Wal, Wall; Han, Handy; AC, AC Spark Plug Company; Gas, Gascolator; Ste, Stewart-Warner; Til, Tillotson.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvet; Car, Carter; Str, Stromberg; DL, Detroit Lubricator; John, Johnson; Til, Tillotson.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Un, United; Han, Handy; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Ram, Ramsey; Whit, Whitney Chain; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; Del-R, Delco-Remy; N E, North East; Dyn, Dyneto.
*Bendix starter drive used.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Russ, Russell; Long, Long Clutch Company.

Gearset—Var, G, Warner Gear Company; Detr, Detroit Gear; Mun, Muncie Gear. WG, Warner Corporation.
*Three or four speed gear sets as shown are available for either model.

Universals—Un P, Detroit Universal Products Company; Spic, Spicer Manufacturing Corporation; MM, Mechanics Universal Joint Company, Rockford, Ill.; Cle, Cleveland; Fab, Fabric.

Rear Axle—Col, Columbia; Sal, Salisbury; Cla, Clark Equipment Company; Tim, Timken.

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company, Detroit, Mich.; War, Warner.

Brakes—H, hydraulic; M, mechanical; SD, steeldraulic; Bendix, Bendix Brake Corporation. *Bendix front; own rear.

Rear Springs—S, semi-elliptic; El, full elliptic; Cant, semi-cantilever.

Spring Shackles—Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; O-N, O-N Spring Shackle Company; Belf, Belflex Corporation.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Alem A, Alemite automatic; Bijur, Bijur chassis lubricator; Cen, central magazine.

Tires—Stutz 134½ wheel base has 33x6.50. Company; Rub B, rubber block; Faf,

COURT RAPS RACKET IN RECEIVERSHIP SUIT FOR KELLY-SPRINGFIELD CO.

Newark, N. J., Sept. 22.—Another case against the Kelly-Springfield Tire Company in an attempt to throw it into bankruptcy has been dismissed this time in Federal Court by Judge Guy L. Fake. In dismissing the case, Judge Fake expressed regret that the application for a receiver had even been filed on account of the great harm done the company. Only a few days previously Vice-Chancellor Fallon dismissed a similar case brought before him in Jersey City by James A. Kelly of Arlington Avenue.

Morris H. Cohen, counsel for Conrad J. Levin of New York, who brought the action in Federal Court, said that he could not agree with the court that great harm had been done the company through the court actions. He said that the damage had already been done the company through its heavy losses during the past few years.

Mr. Cohen agreed with former Federal Judge Thomas G. Haight to consent to dismissal of the case and was told by the court that the case should never have been started as it was unwarranted.

"But we consider it was warranted," replied Mr. Cohen.

"Then why did you consent to a dismissal now?" asked the court.

"Mr. Haight and I agreed that we would abide by the result of the Chancery action," replied Mr. Cohen.

Continuing he said that he felt his client had a good case in bringing the action for a receiver and in addition his client's wife and his father-in-law held stock.

"But your client only has 100 shares valued at about $300," said the court.

Judge Fake said there was too much ill-considered receivership action these days which gave rise to an impression that it was a "racket."

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Gear Set and Speeds	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Springs Rear	Spring Shackles	Chassis Lubric.	Tires
Auburn 6-85	Link	Del-R	*Del-R	Long	War 3	Un P	Col ½	*4.9	H	Ross	S 56¾	Own	Bijur	18x5.50
Auburn 8-95	Link	Del-R	*Del-R	Long	War 3	Un P	Col ½	*4.7	H	Ross	S 56¾	Own	Bijur	18x6.00
Auburn 125	Link	Del-R	*Del-R	Long	Detr 3	Un P	Col ½	*4.45	H	Ross	S 56¾	Own	Bijur	18x6.50
Austin	Gear	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal	5.25	Mech	Say B	Cant	Own	Al-Z	18x3.75
Blackhawk 6	Link	Del-R	Del-R	Borg	Detr 4	Un P	Sal ½	4.75	H	Gem	S 60	Own	Bijur	31x6.00
Blackhawk 8	Link	Del-R	*Del-R	Borg	Detr 4	Un P	Sal ½	4.75	H	Gem	S 60	Own	Bijur	31x6.00
Buick 8-50	Tex	Del-R	Del-R	Own	Own 3	Own	Own ½	4.54	M	Sag	S 54½	Own	Al-Z	18x5.25
Buick 8-60	Tex	Del-R	Del-R	Own	Own 3	Own	Own ¾	4.45	M	Sag	S 55¼	Own	Al-Z	19x5.50
Buick 8-80	Tex	Del-R	Del-R	Own	Own 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Buick 8-90	Tex	Del-R	Del-R	Own	Own 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Cadillac 452	Morse	Del-R	Del-R	Own	Own 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Alem	19x6.50
Cadillac 355	Morse	Del-R	Del-R	Own	Own 3	Spic	Own ¾	4.39	Own	Own	S 60	Own	Alem	19x7.00
Chevrolet	Var	Del-R	*Del-R	Own	Own 3	Own	Own ½	3.82	M	Own	S 54	Tryon	Alem	19x4.75
Chrysler 6	Morse	Del-R	Del-R	Own	Own 3	Un P	Own ½	4.6	H	War	S 53¾	Tryon	Al-Z	19x5.00
Chrysler 70	Morse	Del-R	Del-R	Own	Own 4	Un P	Own ½	3.82	H	War	S 57¾	Rub B	Al-Z	18x5.50
Chrysler 66	Morse	Del-R	Del-R	Own	Own 3	Un P	Own ½	4.70	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Chrysler 8	Morse	Del-R	Del-R	—	Own 4	—	Own ½	4.10	H	War	S 54⅝	——	Al-Z	18x5.50
Chrysler Imperial 8	Morse	Del-R	Del-R	—	Own 4	—	Own ½	3.81	H	Ross	S 58½	——	Al-Z	18x7.00
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	Det 3	UnP&MM	Col F	4.41	H	Gem	S 62	Own	Bijur	18x7.00
De Soto 6	Var	Del-R	Del-R	Borg	Own 3	Un P	Own ½	4.6	H	Own	S 53¾	—	Al-Z	19x5.00
De Soto 8	Var	Del-R	Del-R	Borg	Own 3	Un P	Own ½	4.6	H	Own	S 54⅝	Rub B	Al-Z	19x5.25
Dodge 6 D D	Morse	Del-R	Del-R	Borg	Own 3	Un P	Own ½	4.9	H	War	S 53¾	Tryon	Al-Z	19x5.00
Dodge 8	Morse	Del-R	Del-R	Borg	Own 3	Un P	Own ½	4.6	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Durant 6-14	Morse	Aut-L	*Aut-L	Borg	Own 3	Spic	Own ½	4.4	S D	Own	S 55	Tryon	Alem	29x5.00
Durant 6-17	Morse	Aut-L	*Aut-L	Borg	Own 4	Spic	Own ½	3.72	S D	Own	S 55	Tryon	Alem	29x5.50
Elcar 6-75	Link	Del-R	*Del-R	Long	War-G 3	Spic	Sal ½	4.88	H	Ross	S 53½	Belf	Alem	29x5.00
Elcar 140 and 130	Link	Del-R	*Del-R	Long	War-G 4	Spic	Sal ½	...	H	Ross	S 57	Belf	Alem	30x7.00
Elcar 8-95-96	Link	Del-R	*Del-R	Long	War-G 3	Spic	Sal ½	4.90	H	Ross	S 56	Belf	Alem	29x5.50
Essex	Morse	Aut-L	*Aut-L	Own	Own 3	Spic	Own ½	5.41	Bendix	Gem	S 54⅝	Own	Alem	19x5.00
Ford A	Cel	Own	*Own	Own	Own 3	Own	Own ¾	3.7	M	Gem	S Tr	Own	Al-Z	19x4.75
Franklin 145	Ram	Del-R	*Del-R	Br-L	*Detr 4	Spic	Own ½	4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin 147	Ram	Del-R	*Del-R	Br-L	Detr 4	Spic	Own ½	4.73	H	Gem	El 42	None	Al-Z	19x6.50
Gardner 136	Link	Del-R	*Del-R	Borg	War-G 4	Spic	Col ½	4.45	H	Ross	S 54	O-N	Alem	29x5.50
Gardner 148	Link	Del-R	*Del-R	Borg	Own 4	Spic	Col ½	4.45	H	Ross	S 54	O-N	Alem	29x5.50
Gardner 150	Link	Del-R	*Del-R	Borg	War-G 3	Spic	Col ½	4.45	H	Ross	S 57	O-N	Alem	30x6.50
Graham Std. 6	Link	Del-R	*Del-R	Long	War-G 3	Un P	Sal ½	4.7	H	Ross	S 54	Tryon	AL-Z	19x5.25
Graham Spl. 6	Link	Del-R	*Del-R	Long	War-G 4	Un P	Sal ½	3.91	H	Ross	S 54	Tryon	Al-Z	18x5.50
Graham Std. 8	Link	Del-R	Del-R	Long	W C 3	Un P	Sal ½	4.45	H	Ross	S 56	Rub B	Al-Z	18x6.00
Graham Spl. 8	Link	Del-R	Del-R	Long	War-G 4	Un P	Sal ½	3.90	H	Ross	S 56	Rub B	Al-Z	18x6.00
Graham Cust. 8	Link	Del-R	Del-R	Long	War-G 4	Un P	Cla ½	3.92	H	Ross	S 58	Own	Bijur	19x6.50
Graham Cust. 8	Link	Del-R	Del-R	Long	War-G 4	Un P	Cla ½	3.92	H	Ross	S 58	Own	Bijur	19x6.50
Hudson Super 8	Morse	Aut-L	*Aut-L	Own	Own 3	Spic	Own ½	4.7	Bendix	Gem	S 54⅝	Own	Alem	18x5.50
Hupmobile Cen 6	Morse	Aut-L	*Aut-L	Borg	Detr 3	MM	Sal ½	4.70	S D	Ross	S 53	Tryon	Al-Z	19x5.50
Hupmobile Cen 8	Morse	Aut-L	*Aut-L	Borg	Detr 3	Un P	Sal	4.55	S D	Ross	S 52¾	Rub B	Al-Z	19x5.50
Hupmobile C	Morse	Aut-L	*Aut-L	Long	Detr 3	Un P	Own ½	4.55	S D	Ross	S 54	Own	Alem	31x6.00
Hupmobile H and U	Morse	Aut-L	*Aut-L	Long	Detr 3	Un P	Own ½	4.07	S D	Ross	S 57	Own	Alem	19x6.50
Jordan St. Line 80	Morse	Aut-L	*Aut-L	Long	War-G 3	Cle	Col ½	4.9	H	Gem	S 55¾	O-N	Alem	28x5.50
Jordan Grt. Ninety 8	Morse	Aut-L	*Aut-L	Long	War-G 3	Cle	Col ½	4.25	H	Gem	S 55¾	O-N	Alem	30x6.00
La Salle 345	Morse	Del-R	Del-R	Own	Own 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Alem	19x6.50
Lincoln	Morse	Del-R	Del-R	Own	Own 3	Spic	Tim F	4.58	Bendix	Own	S 60	Own	Alem	20x7.00
Marmon-Roosevelt	Diam	Del-R	*Del-R	Rock	War-G 3	Spic	Sal ½	4.9	Bendix	Ross	S 54⅛	Tryon	Al-Z	19x5.50
Marmon Eight-69	Diam	Del-R	*Del-R	Rock	War-G 3	Spic	Sal ½	4.9	Bendix	Ross	S 56⅛	Rub B	Al-Z	19x5.50
Marmon Eight-79	Diam	Del-R	*Del-R	Rock	Detr 3	Spic	Sal ½	4.7	Bendix	Ross	S 60	Rub B	Al-Z	19x6.00
Marmon Big 8	Diam	Del-R	*Del-R	Rock	War-G 4	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Al-Z	19x6.50
Nash Single Six	Cel	Aut-L	*Aut-L	Borg	Own 3	Fab	Own ½	4.7	S D	Ross	S 50⅞	Tryon	Alem A	29x5.00
Nash Twin Ig. 6	Cel	Aut-L	*Aut-L	Borg	Own 3	Own	Own ½	4.5	Bendix	Gem	S 54	Own	Bijur	29x5.50
Nash Twin Ig. 8	Diam	Aut-L	*Aut-L	Borg	Own 3	Own	Own ½	4.5	Bendix	Gem	S 56¾	Own	Bijur	31x6.50
Oakland V-8	Morse	Del-R	Del-R	Own	Own 3	MM	Own	4.42	M	Sag	S 54½	Tryon	Al-Z	28x5.50
Oldsmobile	Var	Del-R	Del-R	Borg	Mun 3	Un P	Own ½	4.54	Own	Sag	S 54½	Tryon	Alem	28x5.25
Packard 826-833	Morse	Dyn	*Dyn	—	Own 4	—	Own ½	——	M	Own	S 60½	——	Bijur	19x6.50
Packard 840-845	Morse	Dyn	*Dyn	—	Own 4	—	Own ½	——	M	Own	S 60½	——	Bijur	19x7.00
Peerless St. 8	Link	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.7	Bendix	Ross	S 56⅛	Rub B	Alem	29x5.50
Peerless Master 8	Link	Aut-L	*Aut-L	Rock	War-G 4	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless Custom 8	Link	Aut-L	*Aut-L	Rock	War-G 4	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.50
Pierce-Arrow	Morse	Del-R	Del-R	Long	Own 4	Spic	Own ½	4.58	Bendix	Gem	S 60	Faf	Al-Z	19x6.50
Pierce-Arrow	Morse	Del-R	Del-R	Long	Own 4	Spic	Own ½	4.08	Bendix	Gem	S 60	Faf	Al-Z	18x7.00
Pierce-Arrow	Morse	Del-R	Del-R	Long	Own 4	Spic	Own ½	4.42	Bendix	Gem	S 60	Faf	Al-Z	18x7.00
Pierce-Arrow	Morse	Del-R	Del-R	Long	Own 4	Spic	Own ½	4.42	Bendix	Gem	S 60	Faf	Al-Z	18x7.00
Plymouth	Cel	Del-R	Del-R	Rock	Own 3	Own	Own ½	4.37	H	War	S 53⅝	Tryon	Al-Z	19x4.75
Pontiac	Morse	Del-R	Del-R	Own	Own 3	MM	Own	4.42	M	Sag	S 54	Tryon	Al-Z	29x5.00
Reo 15	Link	Del-R	Del-R	Borg	War-G 3	Spic	Sal ½	4.45	H	Ross	S 55	Rub B	Al-Z	18x5.50
Reo 20	Morse	Aut-L	Del-R	Russ	Own 3	Detr	Own ½	4.07	H	Ross	S 55	Rub B	Al-Z	18x6.00
Reo 25	Morse	Aut-L	Del-R	Long	Own 3	Detr	Own ½	4.42	H	Ross	S 55	Rub B	Al-Z	18x6.50
Ruxton (Fr. Wh. Dr.)	Link	Aut-L	*Aut-L	Long	Own 3	Own	Own	4.25	H	Gem	S 55	Own	Alem	31x6.00
Studebaker Six	Whit	Del-R	*Del-R	Long	Own 3	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Dict. 8	Var G	Del-R	*Del-R	Long	War-G 3	Spic	Own ½	5.11	Bendix	Ross	S 54	Tryon	Al-Z	19x5.25
Studebaker Com. 8	Var G	Del-R	*Del-R	Long	Own 3	Spic	Own ½	4.73	Bendix	Ross	S 56	Faf	Al-Z	19x6.00
Studebaker Pres. 80	Var G	Del-R	Del-R	Long	Own 3	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Studebaker Pres. 90	Var G	Del-R	Del-R	Long	Own 3	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Stutz M	Link	Del-R	Del-R	Borg	Detr 4	MM	Tim ½	4.5	H	Gem	S 62¼	Own	Bijur	32x7.00
Viking Eight	Whit	Del-R	Del-R	Borg	Mun 3	MM	Own ¾	4.63	Bendix	Sag	S 58	Tryon	Alem	30x6.00
Windsor 6-69	Morse	Aut-L	*Aut-L	Borg	War-G 3	MM	Col ½	4.9	H	Ross	S 54	O-N	Alem	29x5.25
Windsor 6-72	Link	Del-R	*Del-R	Borg	War-G 3	MM	Col ½	4.9	H	Ross	S 54	O-N	Alem	29x5.50
Windsor 6-77	Link	Del-R	*Del-R	Borg	War-G 4	MM	Col ½	3.9	H	Ross	S 54	O-N	Alem	29x5.50
Windsor 8-85	Link	Del-R	*Del-R	Borg	War-G 3	MM	Col ½	4.63	H	Ross	S 54	O-N	Alem	31x6.00
Windsor 8-92	Link	Del-R	*Del-R	Borg	War-G 4	MM	Col ½	3.9	H	Ross	S 54	O-N	Alem	31x6.50
Whippet 96 A	Var	Aut-L	Aut-L	Borg	Own 3	MM	Own ½	4.55	Bendix	Own	S 40½	Tryon	Alem	19x4.75
Willys-Six 98 B	Var	Aut-L	Aut-L	Borg	Own 3	MM	Own ½	4.60	Bendix	Own	S 49¾	Tryon	Alem	19x5.00
Willys 8-80	Link	Aut-L	Aut-L	Borg	Own 3	MM	Own ½	4.60	Bendix	Ross	S 56	Tryon	Alem	19x5.50
Willys-Knight 66 B	Link	N E	N E	Rock	Own 3	MM	Own ½	4.60	Bendix	Ross	S 57½	Own	Bijur	19x6.00
Willys-Knight 87	Link	Aut-L	Aut-L	Rock	Own 3	MM	Own ½	4.89	Bendix	Own	S 53	Tryon	Alem	19x5.50

J. S. MARVIN ANSWERS BERNET ON BUSES

Detroit, Sept. 22.—Before he returned to New York city, following the conference of the traffic managers of the National Automobile Chamber of Commerce members, James S. Marvin, assistant general manager of the N. A. C. C., took time off to reply to the published statement of J. J. Bernet, president of the Pere Marquette Railroad, who had commented on subsidized competition cutting rail traffic and reducing employment on the railroads. In his statement Mr. Marvin said:—

"I cannot agree with Mr. Bernet. It is a matter on which exhaustive studies have been made and a great deal of data published, drawn, for the most part, from government sources. These data indicate that less than 2½ per cent. of railroad taxation finds its way into the highways, and most of this goes for improvement of local roads that serve as feeders for railway stations.

"On the other hand, more than one-third of the total highway bill is paid by special forms of taxation levied on motor vehicles. Every ton of freight hauled on the highways undoubtedly gives employment to more men per ton than freight hauled on the railroads.

"The automobile industry, however, is perhaps the biggest user of railway transportation in this territory and has a keen interest in the welfare of the railroads."

E. M. STARK NEW DIRECTOR OF NACHMAN-SPRINGFILLED

Chicago, Sept. 22.—E. M. Stark has been elected a director of the Nachman-Springfilled Corporation to succeed James L. McInerney, who became a vice-president. Other directors were re-elected. The office of chairman of the board was eliminated. Fred A. Nachman, formerly chairman, was elected president and general manager, and Louis A. Suekoff, formerly president, was made first vice-president. The other officers were re-elected.

CONTINENTAL MOTORS — Powering a Nation — AMERICA'S STANDARD

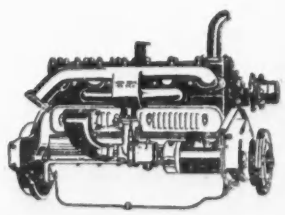
Specify Continental

"Specify Continental" is more than a suggestion or a slogan. It is a practice and a policy which for 29 years has enabled manufacturers in every field where gasoline power is employed to offer to the users of their product a power plant specifically designed to meet particular power requirements.

CONTINENTAL MOTORS CORPORATION

Offices: Detroit, Michigan, U. S. A.
Factories: Detroit and Muskegon

The Largest Exclusive Motor Manufacturer in the World



Continental Motors

MERCHANDISING
ACCESSORIES
EQUIPMENT

WHOLESALE

DISTRIBUTION
SHOP EQUIPMENT
REPLACEMENTS

JOBBER UPTURN IN PHILADELPHIA

Compulsory Inspection Giving Impetus To Sales

PHILADELPHIA, Sept. 22.—Jobbers of automotive supplies and replacement parts have noted an encouraging upturn in trade in the last week or ten days. Compulsory motor vehicle inspection, now in progress, has given a decided impetus to sales of numerous items classified as "safety equipment," but while this is an important factor in the general business improvement, not all of it, by any means, is attributed thereto.

Some jobbers have increased their selling staff and several have been adding new lines of merchandise, indicative of the hope and expectation of continued betterment in turnover. A few concerns report they are ahead of their sales figures of this period last year. Altogether the business outlook appears at least very satisfactory.

Roberts Auto and Radio Supply Company, 17th and Callowhill Streets, reports business very much better this month than during August, this applying to the general line, but with the emphasis recently on safety equipment, including brake lining.

Philadelphia Motor Accessories Company, 3129 Broad St., finds September trading slightly improved over that of August, although a little behind last year's September figures. The various items of safety equipment recently have taken a spurt in the selling. This house has just added the Samson line of electrical household appliances, which is being merchandised through its radio division. Toys again will be featured for the holidays.

Casanave Supply Company, automotive division, 2028 Sansom St., reports business as having picked up substantially during the last ten-day period, with replacement parts among the outstanding sales items and safety equipment beginning to show greater activity.

Gaul, Derr & Shearer Company, 16th Street and Fairmount Avenue, which company furnished the car testing equipment manufactured by the Weaver Manufacturing Company, for the tests in "Safety Lane," being made by the Automobile Club of Philadelphia, in connection with the compulsory state inspection of motor vehicles, finds that safety-equipment sales have been considerably accelerated.

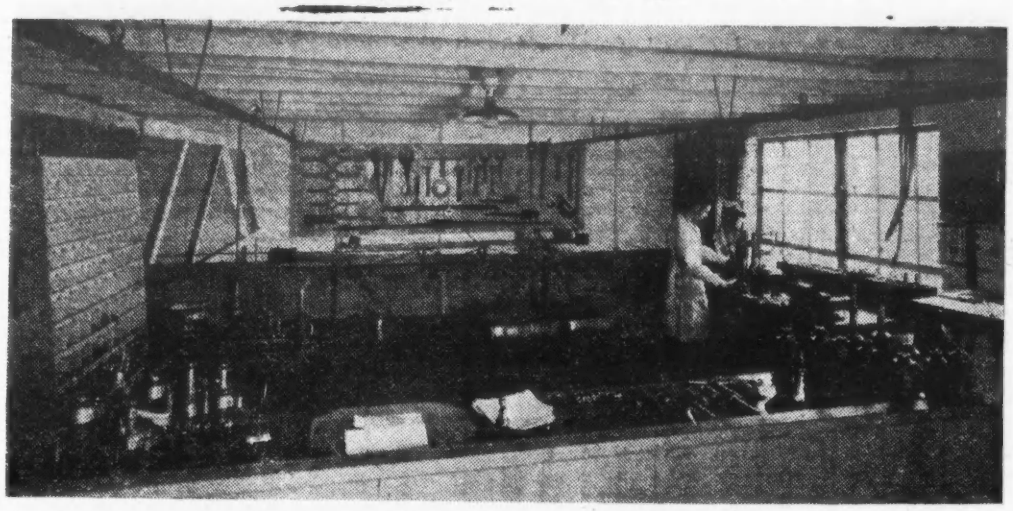
Sayer, Hay Company, 1420-28 Melon St., reports business very much improved in the past week, with September trade to date better than that of the previous month. The company is looking forward to decidedly improved conditions in the near future. Tires are leading in sales at present and automobile trunks are selling better than they did in August. New lines added by the company consist of Vickers hydraulic jacks for trucks and motorbuses and Air-Lec garage-door operators, for which the company has taken the agency.

Frank C. Hornbeck, 321 North 15th St., finds business going along fairly well, showing improvement this month over August sales. Fenders and automobile trunks are moving best with tire carriers holding their own.

Swain-Hickman Company, 3519 Lancaster Ave., reports September selling decidedly better than that of August, with figures ahead of this period in 1929. Bearings and brake lining are the sales leaders at present. Plews oilers have been added to the company's lines.

Parts Service Company, 5217 Haverford Ave., reports business as very good and ahead of this time a year ago. Brake lining and other safety equipment are among the best selling merchandise right now. The company has added two members to its Philadelphia-Camden sales force.

Well-Arranged Workshop on Coast



This is one of the workshops in the Motor Rim and Wheel Service plant at Los Angeles. This clean, neat, well-arranged crib is the hydraulic tool shop and is equipped to handle and repair all types of hydraulic tools

PREST-O-LITE SHIPMENTS IN AUGUST DOUBLE JULY

Indianapolis, Ind., Sept. 22.—August shipments of batteries from the Indianapolis, Oakland and Toronto plants of the Prest-O-Lite Storage Battery Corporation were more than double those of July, and September sales have started with unusual activity, according to announcement made here this week by H. E. Komitch, sales manager.

While much of this increase is due to the normal fall improvement in the battery industry, a large part of the company's present prosperity, Mr. Komitch said, comes as a direct result of the introduction of an entirely new type of automotive battery claiming added convenience in use in that it is not necessary to add water more than three times a year.

Facilities for the manufacture of the new battery call for the installation of a great deal of new factory equipment, it was said, and when the change over is completed production will be practically trebled. J. H. McDuffee, vice-president in charge of the local Prest-O-Lite plant, is now on an extended airplane tour of Eastern distributor points in connection with the introduction of the new unit.

BATTERY CONTAINERS, INC. TO ERECT NEW PLANTS

Indianapolis, Ind., Sept. 22.—John Ahlgren Lindenborg of this city, inventor of the first storage battery container and vice-president of the Battery Containers, Inc., has given out the information here that the company will erect one and perhaps two new plants in the near future. A newly patented process now used by the company in making the containers is also the invention of Lindenborg, who said a new plant will be built at Oakland, Cal. The present factory at Lowell, Mass., he said, turns out 3,600 containers daily.

Editor's Column

ONE of the best arranged and most pleasing automotive wholesale establishments in the East is the store of the Globe Motorists Supply Company in Mount Vernon, N. Y.

This concern was founded as a bicycle business eleven years ago by Herman L. Cutler and Henry Spolter but quickly developed into a retail automobile supply business. After two years the idea of entering the wholesale field was born and E. J. Maxwell entered the organization in charge of sales.

From this humble beginning a rapid growth ensued until in 1928 the building was constructed. At that time it was thought that this building would furnish ample space for a period of five years, but at this time (twenty months later) workmen are busily adding another floor to the present structure. Furthermore, the company is seeking a railroad siding site where it is planned to construct a three story warehouse.

The firm is a general line jobber handling accessories, tools, shop equipment and replacement parts. Besides this they operate a shop for the overhauling of maintenance and shop equipment. The latter has proved very successful in assisting in the sale of shop equipment as well as being a profitable department.

There are, of course, many reasons for the success obtained. Perhaps one of the chief reasons has been the policy adopted by the management toward the sales department and the thoroughness with which this sales department has combed the territory covered. Their salesmen are paid on a bonus or commission basis, dependent upon volume secured, and this arrangement is so made that their earnings are allowed to be unusually large for automotive jobber salesmen. The eight men traveling have an average earning through the year of $75 and $85 per week—some of them, of course, running higher. These eight men sell intensively within a radius of thirty miles. The basis upon which the sales department gets business is that an account which buys one item from them should buy all needed items from them. The management co-operates by maintaining a very complete stock in a large number of lines—the inventory approximating $100,000.

One of the most interesting plans adopted which has done much to increase the sale of shop equipment and also adds greatly to the net profits, of the working capital is the "trade acceptance" plan used by the Globe Motorists Supply Company. Under this plan a shop man wishing to purchase, let us say, equipment costing $150, issues a series of trade acceptance notes in payment for same. Mr. Cutler believes in extending these notes over a long period of time and would rather accept twelve monthly notes of small denomination than he would three monthly notes of a correspondingly larger denomination.

The money used in this financing plan is excess capital which is not needed in the ordinary operation of the business. By using it in this manner, it earns a much higher rate of interest than is possible with the ordinary forms of investment. Although the amount of merchandise sold on this basis in 1929 was exceedingly large, not one cent was lost. It is also a very acceptable plan to the service trade, as many who are not good credit risks can purchase on this plan by giving a chattel mortgage for security.

This company has been strong enough from the beginning to stick to a "one price for all" policy. The same discount is granted on all lines to every account and the discount is one which is shorter than given by competing jobbers. When a buyer kicks back at the discount offered him, he is easily sold by being shown what it would cost him to drive to some other establishment where he might or might not be able to have his demand supplied. In other words, the service rendered is one which outweighs the difference in discount.

The financial success and the rapid growth that this automotive jobber has enjoyed proves that such out of the ordinary plans are good if correct and many others would profit by adopting similar ones.

RENO & NANNARY, INC., FORMED AT SEATTLE

Seattle, Wash., Sept. 22.—Reno & Nannary, Inc., is the new firm name of a company resulting from the merger of the American Auto Top and Body Company, with the retail business formerly handled by the Garlick Manufacturing Company. Lewis (Louie) Reno, until recently with the Garlick company, and Joe Nannary, for ten years operating the American Auto Top Company at 1111 East Union St., here, have formed the new company, and purchased the retail business of the Garlick Manufacturing Company.

The Garlick Manufacturing Company has consolidated with Joe McDonald of the Auto Top and Body Company, forming the McDonald-Garlick Company, to manufacture seat covers, tire covers and carry on a wholesale business in top and body fabrics, hardware, etc. This company will have its establishment on 10th Avenue, near Pike.

Safety Lane at Wichita Proves Most Successful

Wichita, Kan., Sept. 22.—During the past week a total of 2,735 automobiles were tested at "Safety Lane" and 1,122 were granted O. K. stickers, testifying their control equipment was properly adjusted in every particular for safe driving. Only a small percentage of the stickers were given when the cars were driven through the lane. Stickers were granted when the cars were brought back with slips from repair men, indicating necessary repairs had been made.

Approximately 10 per cent. of the cars which passed through the lane were granted O. K. stickers on their first trip through the tests, the daily percentage mounting as the campaign progressed The first day, when 554 cars were tested, only 36 received O. K.'s on their first test.

Arch N. Booth, assistant secretary of the chamber of Commerce, and secretary of the public safety committee, which sponsored the campaign, said this has been the most successful as well as the most extensive safety campaign ever conducted in Wichita.

"Many drivers learned things about their cars they didn't know before, and we feel that, as an educational venture to advance the cause of public safety on the streets and highways, it was worth while."

Booth indicated that another test of that kind will be put on here within the next sixty or ninty days.

Co-operating with the public safety committee were the Wichita Automobile Dealers Association, the Police Department and numerous automobile service stations. The Weaver Manufacturing Company, Springfield, Ill., furnished a man to superintend operation of the testing stations.

BOWEN BROS. & CO. HOLD BRAKE-LINING CLINIC

San Antnio, Tex., Sept. 22.—Bowen Bros. & Co., wholesaler of automotive equipment and supplies, conducted a brake-lining clinic here this week for the dealers in the territory under the auspices of the Russell Manufacturing Company, whose products they distribute in this section.

L. C. Picnot of the safety department of the Central Power and Light Company delived a talk on the subject, "The Importance of Good Brakes." C. H. Nugent, sales manager of this division for the Russell Manufacturing Company, and Mr. Conroy, engineering staff, gave talks on "Merchandising Brake Lining." A round-table discussion of "Common Brake Troubles and How to Remedy Them," concluded the meeting. F. J. Bowen acted as chairman.

CREW LEVICK BUYS FIVE HELLMUND STATIONS

Newark, N. J., Sept. 22.—The Crew Levick Company, subsidiary of the Cities Service, announces the purchase of five stations from Hellmund Oils, Inc., of Newark. The stations are in Linden, Roselle, Nutley, Cranford and Elizabeth and will come under the direction of northern New Jersey headquarters of Crew Levick. Four of the stations have been completed and opened this year.

In the Newark territory, under the direction of Leo K. Lynch, division manager, outlets are in operation, consisting of exclusive dealer contracts and company-owned stations served by a marine terminal at Perth Amboy.

TAKES ON WEAVER LINE

New Haven, Conn., Sept. 22.—Horton-Gallo-Creamer Company, automotive jobbing firm of 96 State St., has recently taken over the state distributorship for the Weaver Manufacturing Company of Springfield, Ill. The territory includes all of Connecticut except Hartford and Tolland counties. The Weaver line of safety testing apparatus will be carried, according to E. C. Gallo.

PROTECT SPRINGS
FROM RUST, MUD and GRIT
FABRIC SPRING COVERS save the springs where abuse is greatest—made of one piece material—guaranteed to fit any make of car. Please your customers with this spring protection. Write us for catalog and prices.
THE JEAVONS COMPANY
FREMONT - - - - - OHIO

Oldest Mfrs. of Spring Covers

Exhibitors and Exhibits At the Metal Congress

(Continued from Page 5)

plete line of Fuzon accessories and supplies will be displayed.

Gathmann Engineering Company, Baltimore. Booth 33-B.

Gehnrich Oven Company, Inc., Long Island City, N. Y. Booth, Gas Section. Exhibiting (in operation): Small continuous conveyor oven for automatic dip, drain and bake of finishes on variety of metal parts; elaborate pictorial display of ovens for baking finishes, low temperature heat-treating core baking, etc. The new Gehnrich oven book will be distributed.

General Alloys Company, Boston. Booth 22. Exhibiting: Nickel chrome alloy, "Q-Alloys"; carburizing and annealing containers; cyanide and lead pots; furnace hearths, roller rails, heat and acid resisting chain, cyanide-dipping baskets, recuperators, miscellaneous furnace parts, parts for every type heat-treating furnace—carburizing, annealing, normalizing, hardening, tempering, forging, spheroidizing; tubes and retorts.

General Electric Company, Schenectady. Booth 80.

General Electric X-Ray Corporation, Chicago. Booth 15-B. Exhibiting: Radiographs, showing how X-rays have been successfully employed in the inspection of high-pressure fittings, as well as a means of correcting foundry practices by determining the extent and nature of defects, such as blowholes, inclusions, shrinkage, dendrites, etc.; also, a series of Laue diffraction patterns, showing the effect of different types of rolling of sheet metal and the effect of various heat treatments.

General Spring Bumper Corporation (Division of Houdaille-Hershey Corporation), Detroit, Booth 4-F. Exhibiting (in operation): Polishing wheel set-up machine which replaces old method of hand set-up saving 66 per cent., approximately, of the labor and giving 20 per cent. more life to the wheels: this machine has been in actual operation in the General Spring Bumper Plants for two years.

Globar Corporation, Niagara Falls. Booth 53.

Gorden Company, Claud S., Chicago. Booth 34-D. Exhibiting: Pyrometer accessories, including thermocouples, switches, lead wire protecting tubes, insulators and other accessories of a special nature and design for regular and special application.

Gray Iron Institute, Inc., Cleveland. Booth 45-B. Exhibiting: Test bars of various types of gray cast iron, engineering data, results of various investigations, material of that type; all of interest to the engineer and production executive.

Great Lakes Forge Company, Chicago. Booth 20-D. Exhibiting: All types of drop forgings, ranging in weight from one ounce to 100 pounds each; typical drop forge dies, showing various operations required to make drop forgings; will have sales and engineering representatives present to explain in detail factors relative to the manufacture of drop forgings.

Hagan Company, George J., Pittsburgh. Booth 47. Exhibiting: Complete description of all types of industrial furnaces, including designs, photographs and performance data on many new and improved types of heat-treating equipment using gas, oil, coal and electricity as a heating medium; arrangements can be made to visit plants using Hagan furnace equipment.

Halcomb Steel Company, Syracuse. Booth 28-B . Exhibiting (in operation): Corrosion and heat-resisting steels and alloys and examples of uses of the same; also all grades of tool steels, from ingot to finished bar.

Hayes, Inc., C. I., Providence. Booth 38. Exhibiting (in operation): High-speed steel hardening furnace equipped with the Hayes patented atmosphere control, which prevents decarburization, pitting or grain growth of the work; this furnace is type HG-52. The Hayes "Certain-Curtain" atmosphere control gives positive regulation and control of furnace atmosphere; we will gladly harden sample tools for visitors.

Haynes Stellite Company, Kokomo, Ind. Booth 82. Exhibiting (in operation): Display of Haynes Stellite cutting tools, welding rod and special castings; Haystellite, the cast tungsten carbide; Hascrome self-hardening welding rod; Hastelloy castings, a new corrosion-resistant alloy; demonstration of "Haynes Stelliting" process—deposition of Haynes Stellite welding rod on wearing surfaces to prolong life of parts.

Heppenstall Company, Pittsburgh. Booth 7-L. Exhibiting: Heppenstall catalogues will be distributed to all interested in high-grade alloy steels, die blocks, trimmer steels, solid steel four cutting edge shear knives and heavy forgings—both carbon and alloy steel.

Hevi Duty Electric Company, Milwaukee. Booth 79. Exhibiting (in operation): Electric vertical pressure carburizing furnace, with complete temperature control and carburizing gas-mixing machine; pot-type furnace for hardening and drawing operations; small box-type furnace, with electromagnetic winding for determining the AC_2 point of steel; small pot-type furnace with electromagnetic winding for determining AC_2 point of steels submerged in cyanide bath; box-type tool-room furnace with electromagnetic winding for determining the AC_2 point of steel.

Holcroft & Co., Detroit. Booth 49. Exhibiting: Photographs, blueprints and catalogues of heat-treating furnaces.

Hoskins Manufacturing Company, Detroit. Booth 30. Exhibiting (in operation): Small electric box-type furnace, with Chromel ribbon units, equipped with automatic temperature control; display of Chromel resistance wire and ribbon; indicating pyrometers.

Houghton & Co., E. F., Philadelphia. Booth 35-B. Exhibiting: The latest developments of Houghton research in the field of carburizing materials, quenching and tempering oils, liquid-heating media for hardening or tempering, cutting oils, rust preventives, pickle controls, etc.

Hyro Manufacturing Company, Inc., New York. Booth 77. Exhibiting: One No. 10 Hyro automatic industrial furnace, for case-hardening by cyanide and other salts, heat treating, etc.

Illinois Steel Company, Chicago. Booth 12-B.

Illinois Testing Laboratories, Inc., Chicago. Booth 26-D. Exhibiting: Stationary and portable indicating pyrometers for heat-treating furnaces, draw furnaces and metal baths and general use; portable Pyro Lance for measuring the temperature of molten non-ferrous metal; portable Thermo Lance for annealing ovens and furnaces; thermocouples; pyrometer accessories.

Illinois Tool Works, Shakeproof Lock Washer Company, Wedge Lock Tool Company, Chicago. Booth 10-L. Exhibiting: Variety of metal-cutting tools; lock washers and locking terminals; tool holders, vises and clamps.

International Nickel Company, Inc., New York. Booth 10-D. Exhibiting: Typical examples of industrial applications of nickel and nickel alloys. Members of our development and research department will be in attendance to discuss the production or applicaton of these products.

Iron Age Publishing Company, New York. Booth 2-B. Exhibiting: The Iron Age and the reprints of the advertising and editorial section will be distributed to visitors and exhibitors on request.

Ivins' Steel Tube Works, Ellwood, Philadelphia. Booth 36-D. Exhibiting. Seamless chorme-molybdenum tubing, seamless stainless steel tubing, low and high carbon seamless steel tubing and also seamless aluminum and duralumin tubing; some in very small sizes, such as .012 inch O. D.

Jessop Steel Company, Washington, Pa. Booth 47-B. Exhibiting: Tool-steel bars, samples of finished tools made from our products; sheet steels of tool-steel quality for all kinds of saws; also finished saws of various descriptions; stainless steel bars, sheets, plates and strips; articles made up of stainless steel to illustrate the various uses and applications of this steel; die steels and finished dies.

Jones & Laughlin Steel Corporation, Chicago. Booth 3-L.

K-G Welding and Cutting Company, Inc., New York. Booth 104. Exhibiting: Oxyacetylene welding and cutting appartus, viz., welding and cutting torches, oxygen and

(Continued on Page 10)

Today at the National Metal Congress

The following papers will be read at the several meetings of the societies taking part in the National Metal Congress in Chicago, Tuesday, September 23:

A. S. S. T.

Morning.

Sales session.

Afternoon.

Forging Practice, United States Naval Gun Factory—S. L. Blankenship, Naval Gun Factory, Washington, D. C.

Heat Treatment Furnaces Used in Manufacture of Telephone Equipment—W. A. Timm, Western Electric Company, Chicago.

Scaling of Steel at Forging Temperatures—W. E. Jominy and D. W. Murphy, University of Michigan, Ann Arbor.

Copper Brazing in Hydrogen Electric Furnaces—H. J. Webber, General Electric Company, Schenectady.

A. S. M. E.

Afternoon.

Phenol Resinoid Molding Technique — Consideration of Engineering Facts Involved in the Replacement of Metals by Synthetic Plastics—Leon V. Quigley, Bakelite Company, New York.

Production of Plastic Telephone Parts—A. M. Lynn, Western Electric Company, Chicago.

Evening.

Flange Type Motor Mounting — Herbert Chase, McGraw-Hill Publishing Company, New York.

Mechanical Design of Electric Motors, as Regards Standardization and Interchangeability — J. L. Browne, Westinghouse Electric & Manufacturing Company, East Pittsburgh.

A. I. M. E.

10.00 a. m.—Hotel Stevens, south ballroom. A. I. M. E. members are invited to attend A. S. S. T. session on "Salesmanship."

2.00 p. m.—Joint session on Theoretical Metallurgy, Institute of Mtals and Iron and Steel Divisions. S. L. Hoyt, chairman; M. A. Grossmann, vice-chairman.

Studies Upon the Widmanstatten. I. Introduction. The Aluminum-Silver System and the Copper-Silicon System. By Robert F. Mehl and Charles S. Barrett. (T. P. 353).

Cemented Tungsten Carbide. By L. L. Wyman and F. C. Kelley. (T. P. 354).

Transformation of Austenite at Constant Subcritical Temperatures. By E. S. Davenport and E. C. Bain. (T. P. 348).

6.30 p. m.—Joint dinner of Institute of Metals and Iron and Steel Divisions. (Informal. Ladies invited).

Dr. B. D. Saklatwalla, vice-president Vanadium Corporation of America, will give a non-technical talk on **Vanadium.**

AMERICAN WELDING SOCIETY

Morning.

E. A. Doyle, president, presiding.

A few introductory remarks by President Doyle and transaction of any formal business and introduction of local celebrities and the keynote speaker.

Afternoon.

F. T. Llewellyn, past president, presiding.

The examination of Welds by the X-Ray Diffraction Method. By J. T. Norton, Massachusetts Institute of Technology.

Fatigue Investigations of Welded Joints. By G. E. Thornton, State College of Washington.

Stress Distribution in Side-welded Joints. By Walter H. Weiskopf and Milton Male.

AMALOY

A Hot Dip Solder and Protective Coating

Amaloy is a solder and coating rich in lead with characteristics of pure lead. Its appearance, weight, ductility, tensile strength and resistance to acid attack are equal or superior to those of lead, it is stated.

Amaloy is designed to adhere firmly and tenaciously to wrought iron, steel, copper, brass, cast iron, malleable iron and to brass and bronze castings. This property of Amaloy makes it available to engineering and technical professions for use in combating atmospheric or specific acid corrosion and also makes available a new hot dip solder of low cost.

When used as a hot dip coating Amaloy is applied to the properly pickled and fluxed articles through a molten bath of Amaloy held at a temperature of from 675° to 750° F. (Galvanizing requires a temperature of about 900°F.). The surfaces of the articles to be coated must be chemically clean just as in the case of the articles to be electroplated or galvanized. The cleaning or pickling is the most important step in the process, just as it is with other metallic coatings. The acid pickle used with Amaloy is hydrochloric acid. Ordinarily clean work does not require an alkaline wash, but when required, a hot potash immersion is used before the acid pickle. Also in the case of cast iron affected with siliceous slag in the surface, a pickle of hydrofluoric acid is always necessary, as there is no chemical bonding action between Amaloy and silica as there is between Amaloy and iron and steel.

The bond between Amaloy coating and the underlying metal is described as being unusually tenacious and that no flaking off can be produced even with the severest bendings or reversal of bendings.

The tenacity and toughness of this bonding, as between a hot dip coating of Amaloy and the underlying metal, suggested the use of Amaloy as a hot dip solder. This has proven to be an important field for Amaloy, as is makes an excellent bond, is not affected by extreme variations in temperature and is cheaper than the conventional tin-lead solder.

Experiments are stated to have proved that Amaloy is an excellent substitute for 40-60 solder commonly used in dipping radiator cores. The bond and penetration of Amaloy are excellent, and it has the additional advantage of being lower in price than the 40-60 solder mixture.

The inertness of lead and consequently of Amaloy to chemical action makes it valuable in certain applications where tin or zinc would fail. For instance, there may be cited such uses as hot dip coatings on wrought iron or steel pipe destined to carry oils or other substances having a sulphuric acid content. Pipes so coated have been subjected to immersion in an 18 per cent. solution of sulphuric acid for twenty-four hours with no loss of weight and no failure of the coating.

Properties of Amaloy make it valuable for condensers, thimble pots and other containers used in the chemical industry, and in other industries where corrosive liquids have to be handled in such condensers and containers.

An additional advantage of importance is that the threads of Amaloy coated pipes make a tight joint and eliminate to a great extent the use of white or red lead so commonly used to assure tightness.

Amaloy is also valuable in connection with rubber covered electrical conductors, in place of tin, which has, until recently, been standard for coating copper wire before rubber covering. The function of tin is to protect the copper from the chemical action of sulphur in the rubber, principally during the vulcanizing process. The use of Amaloy in this connection is approved by the Underwriters' Laboratories.

The thickness of Amaloy coating produced by hot dipping may be varied to some extent by varying the temperature. Ordinary dipping produces a coating about two-thousandths of an inch thick.

PROGRAM OF SIXTH INTERNATIONAL ROAD CONGRESS

The sixth International Road Congress and Exposition will take place in Washington, D. C., October 6 to 11, both dates inclusive. The program arranged is as follows:

Sunday, October 5

4.00 p. m. to 6.00 p. m.—Reception in honor of Honorary Representatives of the American Road Builders' Association. Offices of the American Road Builders' Association, Suite 938, National Press Building.

Monday, October 6

10.00 a. m.—Meeting, Permanent International Committee. Chamber of Commerce.

2.00 p. m.—Opening plenary session. Constitution Hall.

5.00 p. m. to 7 p. m.—Reception in honor of all visiting delegates. Offices of the American Road Builders' Association, Suite 938, National Press Building.

Evening—Suppers and entertainments by unofficial bodies. Embassies.

Tuesday, October 7

9. a. m.—First Section meetings. Chamber of Commerce.

12.30 p. m.—Luncheon tendered by American Road Builders' Association. Washington Auditorium.

1.30 p. m.—Opening of International Exposition and Demonstration. Washington Auditorium and Demonstration Field. (The exposition will be open during the evening).

Wednesday, October 8

9.00 a. m.—International Exposition and Demonstration. Washington Auditorium and Demonstration Field. Second Section meetings—Chamber of Commerce.

12.30 p. m.—Luncheon tendered by the American Automobile Association. Willard Hotel.

2.00 p. m.—Third session meetings. Chamber of Commerce.

Thursday, October 9

9.00 a. m.—International Exposition and Demonstration. Washington Auditorium and Demonstration Field. Fourth Section meetings. Chamber of Commerce.

1.00 p. m.—Inspection Mount Vernon Memorial Highway and Mount Vernon; Mount Vernon.

8.00 p. m.—Dinner tendered by American Organizing Committee. Willard Hotel.

Friday, October 10

9.00 a. m.—International Exposition and Demonstration. Washington Auditorium and Demonstration Field. Plenary session for passing upon conclusions. Chamber of Commerce.

2.00 p. m.—Excursion. Arlington Experimental Station.

8.00 p. m.—Closing plenary session. Chamber of Commerce.

10.00 p. m.—Reception by the Secretary of State. Pan American Union.

Saturday, October 11

10.00 a. m.—Inspection of United States Naval Academy. Annapolis, Md.

12.30 p. m.—Reception by Governor Ritchie. State House, Annapolis, Md.

1.30 p. m.—Luncheon by Governor Ritchie. Annapolis Roads Club, Annapolis, Md.

Note:—There will be motion picture showings at 8.30 a. m. preceding the morning section meetings and immediately following the afternoon section meetings.

Every afteroon at 5 o'clock will be special demonstration at the Demonstration Field.

EXCEL
RADIATORS
. . . mean guaranteed radiator performance.
The choice of the American Austin should be your choice.
EXCEL
HEXCEL RADIATOR CO.
Milwaukee Wisconsin

Exhibitors and Exhibits At the Metal Congress

(Continued from Page 9)

acetylene regulators. "Waverless Flame" oxygen regulators.

Keller Mechanical Engineering Corporation, Brooklyn. Booth 8-A. Exhibiting (in operation): Keller-flex Flexible Shaft Machine, a new auto body sanding and polishing machine on small roller floor stand, with right-angle sanding and polishing equipment; a new high-speed flexible-shaft machine for shaft speeds direct into the handpiece, 15,000 revolutions per minute; an entirely new machine equipped with two shafts, one for heavy work at slow speed and one for light work at high speed. The following new attachments will be shown: Undercutting attachment for undercutting mica, filing attachment, chipping hammer, slow-speed attachment and complete line of rotary files, consisting of over 200 different shapes and cuts.

Kelly Company, J. W., Cleveland. Booth 12-D. Exhibiting: Acid inhibitor for the pickle bath and drawing compound for stainless steel, and other metal-working products.

Kelley-Koett Manufacturing Company, Inc., Covington, Ky. Booth 8-F. Exhibiting: X-ray equipment for industrial enterprises. Several interesting radiographs made from actual samples sent to our research department by firms throughout the United States will be shown. New and interesting literature pertaining to uses of X-ray in industry will also be distributed.

Kemp Manufacturing Company, C. M., Baltimore. Booth, Gas Section. Exhibiting (in operation): Improved Kemp system for efficient utilization of gas for industrial process heating, gas-fired immersion metal-melting equipment, burner equipment for all types of industrial heating operations.

Kenworthy, Inc., Charles F., Waterbury, Conn. Booth 28-D.

Kinite Corporation, Milwaukee. Booth 3-B.

Kleist, Charles, & Son, Jamestown, N. Y. Booth 24-D. Exhibiting (in operation): A miniature board hammer and a display of drop-hammer boards of the standard type, special built-up type, laminated hammer boards and ram pins, manufactured of the highest grade of special selected hard maple lumber.

Kloster Steel Corporation, Chicago. Booth 21-Ba. Exhibiting: Samples of "Pure-Ore" Swedish steels of every description, including special alloy steels for the most varied purposes—chrome-nickel—chrome-vanadium—tungsten, cobalt and molybdenum steels; tool steels for all purposes, cutlery steel, hot and cold rolled strip steel, band-saw steel, ball-bearing steel, ball steel, razor-blade steel, magnet steel, file steel, spring steel, clock-spring steel, beveled shoe-knife steel, knife steel, rolled figured steel, sectional steel, wire rods, rolled wire, skate steel, band iron, hollow staybolt iron, solid staybolt iron, charcoal pig iron, also Swedish ores and other interesting things pertaining to the manufacture of high-grade tool steels.

Leeds & Northrup Company, Philadelphia. Booth 5. Exhibiting (in operation): Demonstration of L. & N. potentiometer principle, showing advantages of balance method of measuring industrial temperatures; anticipating potentiometer control equipment, indicating and recording potentiometer pyrometers in vapor-proof cases, recording controllers, checking potentiometers; Hump hardening furnace, Homo nitriding furnace and Homo tempering furnace; model furnaces, demonstrating the advantages of Hump and Homo methods.

Leitz, Inc., E., New York. Booth 1-L. Exhibiting (in operation): The new Leitz "Micro-Metallograph" advanced 1931 model will be shown for the first time in this country; this new instrument offers numerous features, namely, microscope of especially heavy design; micrometer screw protected from heat rays; ingenious optical system creating a micro-image flat to the utmost edge and serving both for visual and for photography; permanent alignment for both coarse and fine adjustment; improved illumination provided with conical and oblique light device; also exhibiting the new automatic Differential Dilatometer, which registers automatically, and also photographs the thermal changes of metal as they approach temperatures on the viscosity border; a new Darkfield Illuminator, affording in an entirely and neat manner a means for examining metal specimens and obtaining a much clearer view into its constituents than prevailed heretofore; a complete line of grinding and polishing machines, including the well-known "Guthrie-Leitz" grinding and polishing machine for metallographic specimens with automatic (magnetic) specimen holder will be on display; the Leitz "Metallurscope," which serves as a portable metal miscroscope for both routine and research work, will likewise be in active use.

Lincoln Electric Company, Cleveland. Booth 90. Exhibiting (in operation): A complete line of polyphase induction motors, both sleeve and ball bearings, both open and fully inclosed fan cooled; Lincoln push-button starter for sizes up to motors of 30 horse power capacity; Lincoln "Linc-Weld" motor operating under water; an electronic tornado machine for carbon arc welding; this to be operating on a pipe; this demonstration being typical of all sizes of equipment in which lap, butt or edge welds are made, the weld obtainable from this type of equipment being very ductile with an elongation of 20 to 25 per cent. in 2 inches and with a tensile strength of from 60,000 to 80,000 pounds per square inch; "Stable Arc" hand-welding equipment in several sizes; fleet-weld, stable-arc, light-weld, kathode and stain-weld electrodes; complete line of samples welded with the above electrodes.

Lindberg Steel Treating Company, Chicago. Booth 16-D. Exhibiting: A booth for the entertainment of exposition visitors.

Linde Air Products, New York. Booth 82.

Ludlum Steel Company, Watervliet and Dunkirk, N. Y. Booth 7-B. Exhibiting: L-XX high-speed steel, Deward, Huron and Utica die steels, Seminole chisel steel and Pompton carbon tool steels; various applications of these steels will be illustrated by numerous tools and dies; Strauss metal (tungsten carbide) tools will also be on display.

Madison-Kipp Corporation, Madison, Wis. Booth 1. Exhibiting (in operation): A new size automatic die-casting machine, the details of which will be announced and shown for the first time at the National Metal Exposition; also Kipp air grinders and accessories.

Maehler Company, Paul, Chicago. Gas section.

Mahr Manufacturing Company, Minneapolis, Minn. Booth 60. Exhibiting: A model belt conveyor furnace as a means of displaying photographs and photostats of the more important Mahr industrial furnace installations; also the latest improved Mahr individual, direct connected blowers, and the new Mahr triple atomizing type burner. Mahr safety automatic shut-off valves and other auxiliary equipment.

Marburg Brothers, New York. Booth 21. Exhibiting (in operation): A Thiel precision die-sawing and filing machine, which substitutes for drilling, shipping and filing operations in making dies, jigs, punches, cams, templates, etc.; the largest size machine can do rapid sawing on material up to 5⅛ inches thick.

Maxon Premix Burner Company, Muncie. Gas section.

McGraw-Hill Publishing Company, New York. Booth 15-F. Exhibiting: Business publications, American Machinist, Product Engineering.

Metal and Thermit Corporation, Chicago. Booth 101.

Michiana Products Corporation, Chrobaltic Division, Michigan City, Ind. Booth 36-B. Exhibiting: Fire Armor heat-resisting containers, carburizing and annealing boxes, cyanide, lead and salt pots, tubes and retorts, dipping baskets, Fire Armor and Zorite furnace parts, grids, muffles, rails, hearths, furnace parts and fixtures, sheets, fabricated shapes, etc.

Michigan Steel Casting Company, Detroit. Booth 3. Exhibiting (in operation): A model furnace, demonstrating the use of Misco chain and Misco furnace parts for conveying material through heating and heat-treating furnaces. The model will also demonstrate our recommended principle of drive with counter-weighted compensators, various types of standard and special Misco chains for industrial furnace use, several designs of Misco corrugated trays for pusher furnace work, Misco seamless thermocouple protection tubes, Misco sheet carburizing boxes, Misco sheet dipping baskets and other fabricated dipping racks, fixtures, etc., Misco fixed axle type roller rail, a replaceable wearing strip (roof patented type) rolling mill twist guide with Misco insert.

Midvale Company, Philadelphia. Booth 22-B. Exhibiting: Forgings, heat-resisting and corrosion-resisting castings, tool steels.

Milburn Company, Alexander, Baltimore. Gas section.

Mill and Factory Illustrated, New York. Booth 12-F. Exhibiting: The publication, Mill and Factory Illustrated.

Milne & Co. A., New York. Booth 5-B. Exhibiting: Milne tool and die steels, hollow, solid and auger drill steels, special sections; MR Swedish Lancashire iron, Swedelac cold-drawn electrical iron, Nohab anvils, forged tools, Wardlow's file steel, Wardlow's cutlery sheets, Reynold's aircraft tubing, Prince ball-bearing steel, capillary tubing for Diesel engines.

Minneapolis-Honeywell Regulator Company, Minneapolis. Booth 1-B. Exhibiting (in operation): Motor-operated valves for fuel-air control of industrial furnaces, damper regulating motors, motor-operated automatic shut-off valves for low-pressure oil and gas service, motor-operated final safety shut-off valves for higher pressure application; motorized standard regulating valves, solenoid-operated valves, electric contact temperature controllers, electric contact pressure controllers, combustion safety controllers, relays of small capacities, automatic thermostatic controls for unit heaters.

Modern Engineering Company, St. Louis. Booth 107. Exhibiting (in operation): Complete line of Meco welding and cutting equipment. Special features will be: Demonstration of the Meco multi-seat regulator, equipped with the safety check valve; elaborate display of the type X super welding torch and flame qualifications, demonstration of special machine-cutting tools. The above three will be in the form of a special display and demonstration made up specially for this show.

Molybdenum Corporation of America, Pittsburgh. Booth 8-L.

Morse Twist Drill and Machine Company, New Bedford, Mass. Booth 31-B. Exhibiting: Regular high-speed and carbon twist drills, reamers, milling cutters, taps and dies; also various special tools.

New Jersey Zinc Company, New

(Continued on Page 11)

Technical Sessions Begin Today at Metal Congress

(Continued from Page 3)

eleven charts, each of which has the distribution curves of the yield point, tensile strength, hardness and elongation of one material. Over 3,000 bolts were tested for these curves. These graphs are a provisional estimate of the properties and precision that may be obtained with current steels and present manufacturing methods. Photomicrographs show typical structures of the materials as tested. The strenghening effect of threads is measured by a series of special tests comparing the physical properties of the normal bolts with test bolts machined to the root diameter of the threads. The yield point is usually increased more than the tensile strength and the amount ranges from six to twenty-six per cent.

Summary

It is clearly perceived that this brief record of the properties of some of the commercial bolts now being made contains no intimation of finality. There is rapid progress in the industry. Alloy bolts are more and more extensively used. The requirements in physical properties and uniformity and reliability are always more exacting.

The improvements in furnaces and knowledge of physical properties lead one to believe that finer properties and better uniformity can soon be attained.

In reviewing the evidence, a very important conclusion pertains to the effect of the threads compared with a smooth test section. In a tensile test the external spiral of steel outside of the root area has a moderate stiffening and strengthening effect but its effect in decreasing elongation and reduction of area may be much greater. While this spiral more or less succeeds in holding the metal from stretching and contracting, the tension builds up until finally the metal parts with a violent rupture. There is far more localization of fracture than in the straight 2-inch length of a standard test section. Small details of structure and dimension may be expected to play a larger part than in a 2-inch length where equalization, longer plastic flow and a much reduced rupture load are all in play. In the tensile test of a bolt the maximum load and fracture load may be very close together. This infers that the maximum load on a bolt partakes distinctly of that uncertainty and wide fluctuation characteristic of fracture tensions.

This means a great deal to those interested in the properties of bolts. It forces us to the conception that any given material in the form of a threaded bolt will show a greater "spread" in elastic, yield, and tensile properties than the same material in the form of standard test sections. Greater allowance must be made in specifying limits. There is an obvious futility in placing minima and maxima, in specifying restricted ranges in hardness, yield points, tensile strength and impact, or other requirement. This futility is only the more delusive if the specifications are taken from charts or tables derived from standard test pieces and indiscriminately applied to bolts.

For production work the most practicable control test is by the Brinell hardness machine. With this control the 50-point range serves well as a working basis. But the results of sampling and testing should be interpreted with a knowledge of the probable distribution of results.

But bolts are intended primarily to be used as tension members in some sort of construction. A minimum yield point or tensile strength gives a practical assurance of the required suitability. The tensile testing machine thus completes the report on a bolt.

But, if a minimum is specified, the manufacturer must be allowed his range in tensile properties. It is futile to specify a minimum and expect the average or mean of many bolts to be found only a very few hundred pounds above. It may be possible to have an average deviation only three or four hundred pounds from the mean value, but the extreme values will probably cover a range of several thousand pounds. The type of equipment used in treating bolts and the care in operation can maintain a certain uniformity. But no evidence at hand indicates that "specifications" have anything to do with the characteristics of distribution curves.

As to the improvements and possibilities in developing better bolts, comparatively rapid progress is being made. It is well known that the mechanical equipment for the manufacture of bolts is rapidly changing to provide greater speed and accuracy.

Heating furnaces and quenching tanks are improving even more rapidly. The automatic control of temperature, the circulation of furnace atmospheres and uniform heating and the stirring of the quenching bath are all being perfected.

The sampling, analysis and testing of wire bars and finished product are becoming more frequent and thorough.

The old problems that originate in the steel ingot itself are very difficult for the bolt maker to solve. The structure of steel ingots is a very important source for that "spread" that appears in our distribution curves. There would be distribution curves even if ingots were perfect, but it is obvious that segregation, banding, inclusions, secondary pipes and seams are prolific sources of inequality in the final properties of bolts.

It is now known that annealed wire of as high as 0.55 per cent. carbon is not difficult to cold head and roll thread. It may be either simple carbon or alloy stock. The use of the higher carbon ranges allows tensile strengths up to 175,000 pounds per square inch in simple carbon steels and up to or above 200,000 pounds per square inch in alloy steels. Even at these strengths, and with hardness from 300 to 400 Brinell, there may be from 1.5 to 6 per cent. elongation in the threaded bolt. The connecting-rod bolts of S. A. E. 2350 steel and the thread test series, at 350 Brinell, will bend cold through 180 degrees without fissuring.

Accordingly, if finer bolts are needed they are pretty sure to be supplied, and they will be provided with a uniformity in properties that was entirely unknown a few years ago.

Effect of Prequenching On Hardened Tool Steel

By R. H. HARRINGTON

Abstract

Difficulties in the forms of low hardness and cracks are often encountered in the heat treatment and subsequent use of small dies made from plain carbon tool steel. This paper deals with the study of various effects of prequench treatments on the properties of the subsequent hardened tool steel. It is recommended that, for maximum hardness, this steel be air-normalized from 1650 degrees Fahr., water-quenched from 1470 degrees Fahr., and tempered at 390 degrees Fahr. Oil-normalizing from 1650 degrees Fahr., water-quenching from 1380 degrees Fahr., and tempering at 390 degrees Fahr., yields an equally high hardness. For maximum body value, it is recommended that this steel be annealed from 1470 degrees Fahr., water-quenched from 1380 degrees Fahr. and tempere dat 390 degrees Fahr. For a combination of hight hardness and good body, oil normalizing from 1560 degrees Hahr., followed by water-quenching from 1470 degrees Fahr. and tempering at 390 degrees Fahr., is to be cecommended.

PENNSYLVANIA A. A. TO CONVENE AT READING

Philadelphia, Sept. 22.—The annual convention of the Pennsylvania Automotive Association will be held on October 6-7 at the Abraham Lincoln Hotel, in Reading, Pa. Last year, when the convention was held in Erie, the Philadelphia Automobile Trade Association, which is expected to send a big delegation this year, won the prize, a handsome clock, for taking the largest number of delegates the longest distance to the event.

Exhibitors and Exhibits At the Metal Congress

(Continued from page 10)

York. Booth 1. Exhibiting: Zinc base die castings. This year a variety of finished products, made principally of die-cast parts, will be shown, besides an interesting exhibit of unassembled die castings. This exhibit of assembled products, including several in operation, will well illustrate the variety of finishes, in which parts die cast of alloys of high-grade zinc are now produced, the inherent strength of the die castings, the obvious economies of machine and assembly time.

Northwestern Manufacturing Company, Milwaukee. Booth 93.

Norton Company, Worcester, Mass. Booth 6. Exhibiting: Alundum grinding wheels, Crystolon grinding wheels, Norton refractories.

Ohio Steel Foundry Company, Springfield, Ohio. Booth 26-B. Exhibiting: A centrifugally cast alloy tube; cast and sheet Fahrite carburizing containers, centrifugal roll and other Fahrite alloy castings.

Olsen Testing Machine Company, Tinius, Philadelphia. Booth 25-B. Exhibiting (in operation): Very latest types of Olsen direct motor-driven Brinell hardness tester; ductility testing machine equipment, for sheet metal; Universal tensile testing machine, with automotive drive, and which will be demonstrated with the latest types of instruments; will also demonstrate very fine rings and recent developments in testing-machine equipment; will also demonstrate very latest type of Olsen-Lundgren dynamic balancing machine for balancing rotating parts, as well as the Olsen-Lundgren static balancing machine for balancing rotating parts statically.

Page Steel and Wire Company, Bridgeport. Booth 78.

Park Chemical Company, Detroit. Booth 4. Exhibiting: A complete line of hardening and heat-treating materials, including case-hardening compounds, cyanide mixtures, drawing salts, lead pot carbon, cleaning compounds, etc.

Pels & Co., Inc., Henry, New York. Booth 20.

Penton Publishing Company, Cleveland. Booth 25-D.

Permutit Company, New York. Booth 2.

Pittsburgh Instrument and Machine Company, Pittsburgh. Booth 24. Exhibiting (in operation): Brinell testing machine hand and power operated, metal sheet testers, metallographic grinder, Brinell calibrator, Brinell microscope, depth indicator for Brinell tests, direct reading instrument for Brinell machines, Diamo-Brinell tester, special with 2 millimeter steel ball and diamond indenter.

Pressed Steel Company, Wilkes-Barre, Pa. Booth 44-B. Exhibiting: Rezistal Lite-Wate carburizing and annealing containers, perforated sections, welded and seamless formed products of chrome and chrome nickel alloys; all articles shown welded by our special process.

Production Machine Company, Greenfield. Booth 73.

Reeves Pulley Company, Columbus, Ind. Booth 8-A. Exhibiting (in operation): The modern design of Reeves variable speed transmission, incorporating a number of recent improvements and refinements; in particular new designs of electrical remote and electrical automatic controls for the Reeves variable speed transmission will be exhibited showing the manner in which infinite variable speed regulation of any heat-treating furnace of the continuous type, conveyor or machines may be adjusted infinitely in speed from one or more push-button stations or for certain installations, entirely automatically. Both standard and special designs of the Reeves variable speed transmission will be on display.

Reintjes Company, George P., Kansas City, Mo. Booth 32.

Republic Flow Meters Company, Chicago. Booth 14-B. Exhibiting (in operation): A complete line of Republic indicating, recording and controlling pyrometers. A special feature of this exhibit will be the new Republic control pyrometer, Model No. 134, which will handle directly any load up to 10 kilowatts without the use of auxiliary panels; also Model 135, which is a recent development in three-position control practice.

Republic Steel Corporation, Massillon, O. Booth 16-B.

Riehle Brothers Testing Machine Company, Philadelphia. Booth 1-F.

Roebling's Sons, John A., Company, Trenton, N. J. Booth 102. Exhibiting: Welding wire.

Roessler & Hasslacher Chemical Company, New York. Booth 11-B. Exhibiting (in operation): Complete line of chemicals used in the case hardening, heat treatment and heat coloring of steel; complete line of chemicals used in the electroplating of metals; demonstration of electroplating of copper, cadmium and zinc on steel; demonstration of a new method for the approximate determination of cyanide in case-hardening baths; samples illustrating the application of electroplating and heat treatment of steel.

Rustless Iron Corporation of America, New York. Booth 21-D.

Ryan, Scully & Co., Philadelphia. Gas section.

Ryerson Company, Joseph T., Chicago. Booth 7-D.

Scherr Company, Inc. George, New York. Booth 14-L. Exhibiting (in operation): A complete line of optical precision measuring instruments and tools, featuring a new contour measuring projector, a new model of toolmakers' microscope, a new measuring microscope, an optical dividing head, a new optical division checking device, an optical precision length measuring machine, a universal measuring and locating microscope.

Selas Company, Philadelphia. Booth, Gas Section. Exhibiting (in operation): Selas air and gas mixing machines and compressors, Selas valves, industrial burners, blow torches, soldering irons.

Shakeproof Lock Washer Company, Chicago. Booth 10-L.
See: Lllinois Tool Works.

Shore Instrument and Manufacturing Company, Jamaica, N. Y. Booth 14-D. Exhibiting (in operation): Improved Monotron, Model C-2 Sceleroscope, Model "D" Sceleroscope, durometer and elastometer (rubber-testing instruments), Localcase and Localhard (for heat-treating steel).

Southern Manganese Steel Company, St. Louis. Booth 28.

Southwark Foundry and Machine Company, Philadelphia. Booth 41-B.

Spencer Turbine Company, Hartford. Booth 75. Exhibiting (in operation): Spencer tubo-compressors, which are used for supplying air in connection with oil and gas burning industrial furnaces, foundry cupolas, etc. A fifteen horsepower machine will be operating to deliver air for any furnaces in operation during the show; also a five horsepower machine, with casings and end-heads made up of stainless steel (KA-2) and impellors of duralumin, capable of handling injurious gases and acid fumes.

Standard Alloy Company, Inc., Cleveland. Booth 30-D. Exhibiting: Standard alloy beams, rails and miscellaneous parts for normalizing and pack-heating and pair-heating furnaces; roller hearth disks and spacers, insulated shaft assembly for normalizers, enameling burning racks, chain grate castings for heat-resisting service, furnace trays and shoes, roller rails, skid rails and shoes, pump casings and impellers, furnace parts and miscellaneous heat and acid resisting castings, covering in general the heat-treating and chemical field; also return bends elbows and fittings for use in the oil industry.

Steel City Testing Laboratory, Detroit. Booth 41-B. Exhibiting (in operation): Power-operated Brinell testing machine, type 03, for production testing, with foot pedal operation, giving operator use of both hands for handling specimens and direct reading attachment; type R-3 sheet metal tester, testing sheets up to ⅛ inch in thickness and also ¼ inch in thickness (this type of apparatus can be supplied with tensile testing attachment and autographic recorder); type P hardness testing hammer, portable apparatus for testing large specimens, smaller type for testing small specimens; electromagnetic crack detector for detecting cracks in steel and iron parts for autos, buses, railroad rolling stock, machinery, etc.; type transverse tester for testing transverse strength of castings and bend-qualities of various materials (this machine is hydraulic), Style A standard hand-operated Brinell testing machine.

Steel Publications, Inc., Pittsburgh. Booth 99. Exhibiting: Heat Treating and Forging, Blast Furnace and Steel Plant, Welding, Directory of Iron and Steel Plants, Heat Treating and Forging Directory.

Stoody Company, Whittier, Cal. Booth 103. Exhibiting: Photographic and actual sample display of welded-on overlays made from alloy welding rods.

Strong, Carlisle & Hammond Company, Cleveland. Booth 34. Exhibiting (in operation): Type 55, S., C. & H. heavy duty high school steel-hardening furnace arranged for 530 B. T. U. gas, with McKee mixer, for single valve hand control; No. 1002 Spencer turbo compressor with 3 phase, 60 cycle, 220 volt motor and hand starter and No. 1 discharge, a number of furnace photographs, a small miscellaneous exhibit of furnace parts, circulars and catalogues.

Stuart & Co., D. A., Chicago. Booth 4-D.

Surface Combustion Company, Inc., Toledo. Gas section.

Taylor - Winfield Corporation, Warren, O. Booth 94. Exhibiting (in operation): Both butt-welding and spot-welding machines which are incorporating some new features that will be shown for the first time at this convention.

Thomson-Gibb Electric Welding Company, Lynn, Mass., and Bay City, Mich. Booth 97. Exhibiting (in operation): New style heavy duty air-operated double roll type of seam welder, latest design of welding press, improved medium duty butt welder, two small standard spot welders, display of representative samples of welded products.

Timken Steel and Tube Company, Canton, O. Booth 1-D. Exhibiting: A display of various sizes of bars and other shapes, as well as an assortment of seamless tubing, all of which are manufactured by our company.

Trent Company, Harold E., Philadelphia. Booth 36.

Una Welding and Bonding Company, Cleveland. Booth 105. Exhibiting (in operation): Una welders, both AC-DC and DC-DC types. These welders are available both as single or double operator machines. The new Una semi-automatic welding unit will be shown and operated; also Una full-automatic arc welding head. The complete line of Una welding rods will be exhibited for manual and automatic welding. These include rods for a wide range of ferrous and non-ferrous welding. Several new rods of special interest will be shown, including No. 911, for welding stainless steel.

Vanadium-Alloys Steel Company, Latrobe, Pa. Booth 24-B.

Vanadium Corporation of America, New York. Booth 9-F. Exhibiting: Ferro-vanadium, ferro-chromium, ferro-silicon, ferro-titanium, alsifer, specimens of vanadium steel applications, such as automobile parts, airplane engine parts, railroad and automobile springs, tools, etc.

Vulcan Crucible Steel Company, Aliquippa, Pa. Booth 10-B. Exhibiting: High-speed, alloy and carbon tool steels and special steels.

Weaver Brothers Company, Adrian, Mich. Booth 29-B. Exhibiting (in operation): Complete pickling room display, showing application of methods to control temperature and acid concentration of the pickling solutions. Equipment shown is of the type which assures the most economical operation of the pickling department.

Wedge Lock Tool Company, Chicago. Booth 10-L. See Illinois Tool Works.

Welding Engineer Publishing Company, Chicago. Booth 72. Exhibiting: Magazines, books and educational matter pertaining to welding.

Wheeling Mold & Foundry Company, Wheeling. Booth 61.

Wheelock, Lovepoy & Co., Inc., Cambridge, Mass. Booth 8-D. Exhibiting: Replicas of warehouses, heat treating and forging plants, as well as an exhibit of special parts, showing interesting applications of various hy-ten alloy steel compositions.

Westinghouse Electric & Manufacturing Company, East Pittsburgh. Booth 76. Exhibiting (in operation): Portable 200 and 400 ampere Flex-Arc single operator welding units; automatic seam welder, equipped with Weldomatic head to demonstrate automatic welding of longitudinal seams. The 200 and 400 ampere single operator units will also be used to demonstrate Flex-Arc welding electrodes; also views of electric furnace installations in the metal industry.

Whitman & Barnes, Inc., Detroit. Booth 4. Exhibiting (in operation): A large drill press, which will demonstrate the use of the new Hercules Major drill by drilling 11 per cent. to 13 per cent. manganese steel test blocks; drills of different diameters will be used during the demonstration. This drill is especially designed and made for drilling high manganese steel on a production basis; also a punch press, which will be run on a production-piercing job. This press will be fitted with a die completely equipped with the new Hercules interchangeable punches and retainers. This exhibit will show the interchangeable merits and stripping strength of the Hercules interchangeable punches and retainers under actual production conditions.

Wickwire Spencer Steel Company, New York. Booth 74. Exhibiting (in operation): A model of a furnace, showing the operation of Wisscoloy spirally woven conveyor belt, such as is used in continuous heat-treating furnaces up to 1,800 degrees Fahrenheit; belts of similar construction, made of soft steel in special designs, used for conveyors from quench tanks and other purposes where the economical handling of material under severe conditions is required; Wissco oil-tempered spiral, helical, torsion and flat springs will be shown, and a torsion fatigue testing machine will demonstrate the resistance to fatigue of Wissco valve spring wire.

Young Brothers Company, Detroit. Booth, Gas Section. Exhibiting: One experimental oven, direct gas heated; with automatic control, and equipped with internal recirculating system; one track-type oven, equipped with a combination of direct, indirect and remote gas heat, featuring different types of controls and safety appliances.

Ziv Steel and Wire, Chicago. Booth 17-B.

August Car, Truck Output 232,838, Decline of 14%

(Continued from Page 1)

and 1,632 units, respectively, in July, but was in excess of the record low month of last year, December, with 4,426 passenger cars and 1,069 trucks.

The following table was computed on the basis of figures received from 144 manufacturers in the United States, 42 making passenger cars and 113 making trucks (11 making both passenger cars and trucks), while the Canadian figures were furnished by the Dominion Bureau of Statistics:—

	United States			
1929	Total	Passenger cars	Trucks	*Taxicabs
January	401,037	345,545	53,428	2,064
February	466,418	404,063	60,247	2,108
March	585,455	511,577	71,799	2,079
April	621,910	535,878	84,346	1,686
May	604,691	514,863	88,510	1,318
June	545,932	451,371	93,183	1,378
July	500,840	424,944	74,842	1,054
August	498,628	440,780	56,808	1,040
Total, 8 mos.	4,224,911	3,629,021	583,163	12,727
September	415,912	363,471	51,576	865
October	380,017	318,462	60,687	868
November	217,573	167,846	48,081	1,646
December	120,007	91,011	27,513	1,483
Total, year	5,358,420	4,569,811	771,020	17,589
1930				
January	275,374	236,145	38,657	572
February	346,940	296,461	49,457	1,022
March	401,313	335,720	64,204	1,389
April	443,038	374,913	67,560	565
May	417,406	362,522	54,370	514
June	335,477	289,245	45,773	459
July	262,363	222,459	39,663	241
August	223,046	187,037	35,758	251
Total, 8 mos	2,704,957	2,304,502	395,242	5,013

	Canada		
1929	Total	Passenger Cars	Trucks
January	21,501	17,164	4,337
February	31,287	25,584	5,703
March	40,621	32,833	7,788
April	41,901	34,392	7,509
May	31,559	25,129	6,430
June	21,492	16,511	4,981
July	17,461	13,600	3,861
August	14,214	11,037	3,177
Total (8 mos.)	220,036	176,250	43,786
September	13,817	10,710	3,107
October	14,523	8,975	5,548
November	9,424	7,137	2,287
December	5,495	4,426	1,069
Total (yr.)	263,295	207,498	55,797
1930			
January	10,388	8,865	1,532
February	15,548	13,021	2,527
March	20,730	17,165	3,565
April	24,257	20,872	3,385
May	24,672	21,251	3,421
June	15,090	12,194	2,896
July	10,188	8,556	1,632
August	9,792	6,946	2,846
Total (8 mos.)	130,665	108,861	21,804

*—Includes only factory-built taxicabs, and not private passenger cars converted into vehicles for hire.

METAL CONGRESS OPENS IN CHICAGO

(Continued From Page 1)

than one hundred technical papers.

This year's sessions will be more comprehensive than at any previous nation Metal Congress meetings. For one thing, three additional groups will be represented for the first time. These being the Institute of Metal Division of American Institute of Mining and Metallurgical Engineers, the Machine Shop Practice Division of American Society of Mechanical Engineers and the Gas Products Association.

The International Railroad Blacksmith Association will also hold meetings in connection with the metal congress. Groups which have regularly participated in meetings of the congress will include the American Society for Steel Treating, American Welding Society and American Society of Mechanical Engineers, Iron and Steel Division.

This will be the third time in twelve years that the annual National Metal Congress has been held in Chicago. The last occasion was five years ago when the municipal pier was the scene of the event. The 1929 meetings and exposition were held at Cleveland.

One of the new features to be introduced at this year's meetings will be a conference on sales methods and problems. This innovation is accordingly attracting many sales and advertising executives, and it is being hailed with enthusiasm, particularly since these officials have attended in the past because of the show. Yet they have not hitherto been afforded an opportunity to discuss their own problems. In other words, in the past the sessions have been restricted to the presentation of technical papers.

FORD, CHEVROLET SALES HOLD WELL

Chicago Dealers Maintain Strength in September

CHICAGO, Sept. 22.—The so-called seasonal decline has had little if any retarding effect upon Chevrolet and Ford dealers here, it develops in a survey of retail sales for these two makes of cars. The composite of the Chevrolet situation is that orders held steady during the first ten days of September as compared with the same period in August. Ford dealers, on the other hand, report a slight decrease, yet faction to the fact that they are they point with considerable satisfanding about 40 per cent. of the total new car business, numerically speaking.

In the case of both Ford and Chevrolet the record in used car sales parallels that of new automobiles. Due also to heeding the advice of factory officials and their own good merchandising sense, dealers of Fords and Chevrolets have generally been successful in keeping down used car inventories. From now on, they add, they will watch this department of their operations even a bit more closely, perhaps, than in the spring and summer, for the used car lots, which some of them maintained, will soon be closed for this year.

With factories carefully guarding against overloading their dealers with cars, the stocks of new automobiles are being held down in good shape in both the Ford and Chevrolet retail establishments. For instance, the Ford assembly plant serving the Chicago territory has curtailed production for this month in line with its policy of preventing the accumulation of cars in dealers' hands. Officials here are frank to state that they are making no effort to perform in the role of prophets. Rather, they are taking care of the demand and doing all in their power along co-operative lines to maintain and stimulate it, so far as their own dealer business is concerned.

Previously, a daily output of 330 cars had been planned by the local Ford plant. Since then it has been deemed advisable to cut the daily production to 300 cars. The scale is flexible and the factory here stands ready on short order to revise the schedule upward if demand warrants such a move.

Just now the Ford dealers are staging a special drive for de luxe model business, coincident with announcement of additional types of this description. An extensive newspaper advertising campaign is appearing, and dealers report interest in the new de luxe models on the part of the public.

On their part, the Chevrolet forces are still getting beneficial effects from recent aggressive moves to stimulate sales, including reductions in prices of sport models, making wire wheels standard equipment, and staging an economy contest for drivers. This last named effort enlisted thousands of entrants, it is reported, and resulted in a considerable number of sales. The competition was open to the public and its terms provided for prizes to those who, starting from any Chevrolet dealer's showroom, could drive one of the new Chevrolet sixes the greatest number of miles on a single gallon of gasoline.

Both Chevrolet and Ford have increased the number of their local dealers in the past thirty days, Chevrolet leading in this respect, with two additions, as compared with one for Ford. The new Chevrolet dealers are the Orme Chevrolet Sales and the Garfield Chevrolet Sales, while the newest Ford dealer is the Milford Motor Company.

F. A. STEVENS, ST. LOUIS FORD DEALER, RETIRES

St. Louis, Mo., Sept. 22 (UTPS).—Frank A. Stevens, prominent Ford dealer at 3857-69 South Grand Boulevard, is retiring from active participation in the business. Roy A. Potts, recently an automobile distributer in northwestern Indiana, succeeds Stevens as president of the concern. E. A. Edington becomes secretary-treasurer.

Individuality in Ford Dealer Ads

Seven Ford dealers in the Oranges and Maplewood, N. J., placed individual ads in one section of their local newspaper to advertise their co-operation in a Ford de luxe body-type show.

The dealers used distinctive individuality in their ad copy, and a feature was the lack of duplication in wording or layout of the ad copy.

C. M. Bomeisler Company of Orange stressed the new de luxe body types, while Maplecrest Motors, Inc., of Maplewood featured the convertible cabriolet, "a distinctive beauty of line and color." Henschel Motors, Inc., of West Orange pictured a golf course and played up the de luxe roadster. Norton Motor Sales of Orange showed the de luxe phaeton at the yacht races, while the East Orange Sales & Service, Inc., of East Orange invited the public to arrange for demonstration. The other Ford dealers taking part were W. C. Ubhaus, Inc., of East Orange and the South Orange Sales & Service Company of South Orange

Here's a Direct Approach

SPECIAL!
THIS WEEK ONLY
In order to acquaint the motorists of Dubuque with the facilities of our Modern Motor Ramp Garage, we are offering a complete service at a minimum price for this week only.
WE WILL:
Wash your car
Vacuum clean upholstery
Alemite completely
Check transmission
Check differential
Check battery
Check air pressure in tires
Check wheel alignment
Check head lights
ALL FOR . . . .
$2
Take advantage of this bargain and get acquainted with Dubuque's only Modern Motor Ramp Garage.
Cars Called for and Delivered----We Are Open Day and Night
Iowa Motor-Kelly Tire Sales Co.
Locust, Between Eighth and Ninth Streets
Phone 881

An ad with a direct and positive appeal offering motorists a special inducement, for a week only, to become acquainted with the facilities of a new and the only modern ramp garage in the city was featured by the Iowa Motor-Kelly Tire Sales Company, Locust Street, Dubuque, Ia. The ad outlines clearly just service the motorist could expect for the nominal sum of $2. Nine complete operations and checks are guaranteed, and to the average motorist it meant relief from many of the miner "headaches" incident to the operation of the car.

DOW MOTORS KEEPS APACE OF CHEVROLET OUTPUT

Houston, Tex., Sept. 22.—One new car sale for every thousandth Chevrolet manufactured is the boast of the Dow Motor Company of this city, Chevrolet dealer. The two-thousandth car was sold this last week, shortly after Chevrolet announced the production of its two-millionth car.

"We set this pace last year when the first half-millionth new Chevrolet was announced," W. H. Highams, manager of the company, explained. "At that time we sold our first half-thousandth. When the 750,000 mark was reached, our 750th sale was completed. The proportion was the same when the millionth car was announced and we are still keeping up the record.

"One of the things that contributed toward holding sales up during the last few weeks was a $40 price cut on all sport models and the addition of de luxe wire wheels to standard models at no extra cost."

AMERICAN LEGION NAMES CHEVROLET DEALER

Indianapolis, Ind., Sept. 22.—Ollie A. Davis, president of the Tipton Chevrolet Company, Tipton, Ind., who recently announced his candidacy for the adjutant's post of the Indiana department of the American Legion, has been appointed by the newly elected commander.

CARRINGTON MOTOR SALES EXPANDS IN PHOENIX, N. Y.

Phoenix, N. Y., Sept. 22.—The Carrington Motor Sales, Ford dealer, has recently completed a new sales and service station and general garage in this village. The firm, located on the main highway through to Oswego, is enjoying a fast growing business that makes additional facilities imperative.

BUYS CHEVROLET FIRM

Marshalltown, Ia., Sept. 22.—Ben Henderson has disposed of his stock and equipment in the Chevrolet dealership, 8-10 South Second St., to Ika Gralnek of the Motor Inn, which has exclusive Chevrolet franchise in this city.

CASH BONUS OF $5 MOVES USED CARS

Chevrolet Dealer Has Men Resell Exchange Cars They Took

OFFERING a small bonus plus regular commission to members of its sales force as an inducement to move out used cars has been proving a worth-while step for the Duff-Brown Chevrolet Company, 1105 South Broad St., Philadelphia. The bonus for this purpose is not a standing offer, but is extended when the stock of used cars from time to time rises above the level at which the company strives to keep it. Thus far this summer there have been two such bonus periods, and by the middle of September the company had on hand only eighteen exchange cars, some of which already had been spoken for.

During August the company offered a bonus of $5, plus commission, to every salesman reselling within ten days the exchange car he had taken in in a trade-in deal with his customer.

"This plan," said Mr. Duff of the company, "worked out very well in clearing away surplus used cars. Its basic idea was to instill into the mind of each salesman a greater sense of responsibility in disposing of the cars he had individually taken in on exchange deals with customers. We felt that perhaps heretofore the tendency had prevailed among the selling staff members to leave the disposal of such cars to some one else, letting them stand on the floor while he went after a fresh deal. It seems that the thought of making the bonus offer in connection with a time limit was a good one, inasmuch as the men bestirred themselves at once to resell the used cars as quickly as they could. We have ten salesmen, who are permitted to sell both new and used automobiles. When a salesman has the opportunity to make even a little extra money in disposing of the cars he has taken in, apparently he is more interested in moving them than in just trying to sell cars, some one else may have taken in.

"Our August used car sales showed a gross of $400. For two weeks in September we have been offering a cash bonus of $5 in gold to every salesman who sells used cars up to or in excess of the quota allotted to him for each of these weeks. This plan, too, has been working out well, and we have reduced our used car stock to only eighteen units. We are watching our trade-in deals very closely and are taking in exchange only used cars that we are sure we can sell to advantage.

"We are having no trouble in selling new Chervolet models. We made fifty deliveries in August and by the middle of September we had sold and delivered thirty, so it looks decidedly as though we were going to do better this month than last."

The Duff-Brown Chevrolet Company is a new Chevrolet dealer company, having been formed only on July 21, last. It purchased the equipment of the A. R. Knight Chevrolet Company, which has withdrawn from business. Morris Brown is treasurer of the new concern. The company is holding sales meetings three times a week, with the main session on Saturday afternoons, at which time any prize awards are made.

Customers having service work done at the plant are carefully followed up, and immediately after a job has been performed a letter is sent to the customer, inquiring if the work was wholly satisfactory and requesting that he make any suggestions for the betterment of the service.

FORD DEALER CHANGE

Milford, Conn., Sept. 22.—The firm of Plaza Motors Incorporated, has been formed to take over the former Dutee W. Flint, Ford dealership, at 74 Broad St. Officers are A. V. Frost, president, H. V. Rice, vice-president, and W. A. Tottle, secretary and treasurer. Mr. Rice is manager.